

We are also fortunate in meeting at the same time with the Public Health Association of Canada and the Services Sanitaires de la Province de Quebec in joint congress. These associations with our own are working together for a common object. The problems with which they are dealing are those which confront us in many particulars, and the solution of the problems which stand in our way will solve half the problems of those interested in public health matters generally.

We are meeting to-day under the shadow of a great and terrible war, which is not only deluging Europe in blood, but has brought and is still bringing sorrow and bereavement into very many of the homes of our own land. We are proud of our heroic dead, and for them it may truly be said, "To live in hearts they leave behind is not to die"—nay, rather is it to write their names in the list of the immortals whose fame never dies. Whatever other results may follow as a result of this conflict, one thing is certain, viz., that the great English and French nations will know and understand and appreciate each other more fully than they have ever done in the past, and that the happy alliance now existing in the face of a common danger will bind them together in indissoluble bonds for very many years. That brilliant American correspondent, Frank H. Simonds, referring to this subject not long ago, said this: "It is a fact of more than passing importance that the two great democratic nations of Europe, nations with widely different ideals of democracy, but with a wide area of common ground, should thus be united by bonds which will endure beyond the war and influence human history for long years to come. In this alliance there exists a real and sufficient counterpoise to that German peril which has threatened all democracies, ours as well as theirs." In this country where these two great races form such a large proportion of the population, anything which enhances their mutual understanding and appreciation must be doubly welcome.

We did not meet last year as you know, because of the large number of the medical profession in all parts of Canada who found themselves constrained to answer the country's call and place themselves at the disposal of the military authorities, and not only so but the thoughts and energies and sympathies of all were turned in the one direction, and while all could not take on themselves the active work of the soldier, all could do something to alleviate the hard conditions in the trenches, by providing comforts and needed aid for those at the front or those who are prisoners of

war, and to look after the relations and dependants left behind in the necessary absence of their natural protectors.

All this great and absorbing interest taken and rightly taken in the great war has possibly resulted in a temporary weakening of the interest shown in those most important undertakings which this Association has especially at heart, and some of our institutions in different parts of the country may perhaps show the result in a lessening of the financial support given to them. There should be no discouragement, however, on this account, for if this weakening does exist it can be only temporary.

It is most encouraging in looking over the situation to notice how many institutions and organizations have been put into operation in our fight against tuberculosis, and to find that even the past year has been no exception. This great province has several notable monuments to the enlightened interest which many generous and philanthropic people have taken in this most important subject, and the noble work done by the Dispensary in this city, the Jewish Sanatorium and the Laurentian Sanatorium at St. Agathe, the Sanitorium at Lake Edward, and the Dispensary in Montreal bear eloquent testimony to the fact that in this province as well as the others tuberculosis is looked upon as the great modern menace to life and health.

I cannot refrain from referring in this connexion to the great and generous assistance given by our late president, Colonel Burland and members of his family in the founding and carrying on of the Royal Edward Institute which is doing such a successful work in the city of Montreal. The untimely death of Colonel Burland, coming as it did in the midst of his activities in organizing the Canadian Red Cross for war service, will be felt as a severe blow not only by this Association but by all those who have the physical and moral betterment of their fellowmen at heart. Many other generous-hearted citizens in the province have given and are giving freely of their means to this end. But should this great movement be left so entirely to the initiative and the burden of support be left so entirely on the shoulders of the comparatively few open-hearted of our people? It appears to me that if there is one thing that should appeal more strongly than another to the provincial and municipal authorities it is the public health. It is upon the community as an organized whole that the direction and cost of this campaign should mainly fall, and it is gratifying to know that these authorities all over Canada are beginning more and more to appreciate that fact. I was pleased to hear in the report

read by our secretary this afternoon—a most encouraging report—that this important city of Quebec has opened a municipal hospital for the care of advanced cases of tuberculosis. This city is to be congratulated on its wisdom in thus removing from their homes these cases, which could not help being a constant menace to the lives and health of those by whom they were surrounded; and thereby reducing the number of foci of infection which must constantly be spreading the disease. Nothing in connexion with our campaign is now more thoroughly appreciated than the fact that the advanced cases must be segregated, especially among the poorer people of the community who are forced to live in crowded tenements with insanitary surroundings, if we ever expect to win success.

As far as the provincial government of this province is concerned, I do not know to what extent it is aiding or directing in the fight against tuberculosis, but I can heartily congratulate His Honour in presiding over a province that is in the happy position of having a very considerable surplus of income over expenditure, and that consequently, is in a very good position indeed to see that adequate measures are taken to obtain good results, and check the ravages of this disease. In the end it appears to me that the State must recognize its responsibility in the matter and use its authority as well as its means if hope of a successful issue is to be entertained. It would seem that if we are to win out and prevent this preventable disease, more must be done than even providing dispensaries, sanatoria for incipient cases, and hospitals for advanced cases—important and absolutely necessary as these are. It appears to me that it must be made possible for the poor as well as the rich to have their place in the sun, for the poor as well as the rich to live in houses that have adequate and proper sanitary appliances, that they should have room to breathe and plenty of fresh air and sunlight. In other words, that all persons in the community should at least have their chance, and at least be accorded the possibility of growing up healthy and strong. There should be no slums in Canada. Till we get rid of the slums, I am afraid we shall not get rid of tuberculosis; till we let in the sunlight and the fresh air of heaven into these darkened and unwholesome dwellings, and get the people educated in every day elementary and necessary sanitary knowledge, this and other diseases will linger and complete success will be impossible. It is a large undertaking. It means the solving of the housing problem in congested areas; it means the constant inspection of the young, especially those of

school age, the inspection of the schools and their being kept properly ventilated and in a sanitary condition, it means the control of industrial shops and places where especially large numbers of children and adults of both sexes are employed and the rigid enforcement of rules to the end that those places of employment should be kept in such a sanitary condition that the health of the employees should not be endangered.

It is a big problem, and it is because of its great size and importance, that it seems to me that it can only be solved by those having not only the means, but the authority as well, and these reside in the State, and the State can deal with it on broad and scientific lines. Notwithstanding the greatness of the problem, however, and the fact that we believe further methods are necessary, it is most encouraging to note the very considerable amount of success achieved by means of the agencies already adopted. I am naturally better acquainted with what is being done in my own city and province than elsewhere and am glad to be able to report a gratifying success in lowering the deathrate from pulmonary consumption in the city of St. John.

A number of years ago, I had the honour of inaugurating the St. John branch of our Association and ever since it has been in active operation and doing a good and successful work, operating a dispensary and employing a visiting nurse. In this connexion, I would like to say that the work of the visiting nurse cannot be too highly esteemed, for it is to her that we have chiefly to look to impart that elementary sanitary knowledge to which I have referred. We are reaping some good results in the efforts put forth, in a greatly decreased deathrate from pulmonary consumption, for while the number of deaths from this disease in 1900 was 92 out of a total 775, in 1915 it was only 58 out of a total of 855; that is the percentage has fallen from 11.8 in 1900 to 6.7 in 1915; and this improvement has been gradual and continuous—I have the figures with me for each year, but will not weary you with reading them. But while the above statement is satisfactory as far as it goes, and the general mortality rate from tuberculosis is much reduced, this improvement does not extend to the deaths from the disease in children under ten years of age, in fact, I cannot say that here there is much change to be noticed. I think this emphasizes what I have said with regard to the necessity of getting into closer touch with the family, and of following up the living conditions and housing arrangements of the people, and also of getting advanced cases removed from the family circle. It emphasizes too the need of

inspection of schools and pupils, which is carried out in some places, while it should be carried out in all.

LOCAL BOARD OF HEALTH

SAINT JOHN, NEW BRUNSWICK, JULY, 1916.

DEATHS FOR PAST SIXTEEN YEARS

Years	Total Number of Deaths	Under Ten Years	From Tuberculosis	From Pulmonary Tuberculosis	From Tuberculosis Under 10 Years
1900.....	776	240	118	92	14
1901.....	736	246	103	88	9
1902.....	706	190	89	72	11
1903.....	771	256	95	75	8
1904.....	739	213	115	89	17
1905.....	762	200	106	86	12
1906.....	775	236	90	65	12
1907.....	766	237	90	63	3
1908.....	815	251	115	75	13
1909.....	769	231	110	81	11
1910.....	761	247	110	88	16
1911.....	741	211	84	70	11
1912.....	672	202	90	81	10
1913.....	824	278	76	60	10
1914.....	771	276	82	72	8
1915.....	855	258	78	58	12

T. M. BURNS, *Secretary*.

Our city has recently provided a splendid hospital for advanced cases at a cost of \$104,000 for building and equipment, and maintains the institution as well at a very considerable outlay. It contains fifty-seven beds, and I believe they were all occupied very soon after the building was opened. It has private rooms where patients can pay for their accommodation and treatment, but most of the beds are free. This action by the municipality of St. John is one that I think is likely to be more generally adopted in the future by municipalities or combinations of municipalities, and it is one of the most useful and important that they can be engaged in, and cannot help but have a marked effect in lessening the existence of this disease, I hope to find as one result in the near future an absolute reduction in the mortality of children under ten years of age, from pulmonary consumption, in the city of St. John.

It is said, and I have no doubt correctly, that the young respond more quickly and more completely to proper treatment, than those of adult age, and that the chances of permanent cure are much

greater among them than among those who are more advanced in years. If I may be allowed to express an opinion on the matter at all, I should certainly say that we should concentrate our attention somewhat more on the welfare and living conditions of the child, in the future, than we have done in the past.

I notice in the programme of the Canadian Public Health Association a paper dealing with the "problems relating to the returned soldiers". This is a matter in which as to one of its aspects at least, this Association will be greatly interested. If it be true as stated that in a very great number of post-mortem examinations of people who have died from various diseases, over 90 per cent. show that they have suffered at some time in their lives from a tubercular lesion, then we may reasonably expect that a number of our soldiers, though quite healthy and sound on enlistment, will find that although they may escape wounds from hostile missiles, the hardship, deprivation, exposure to wet and cold in the trenches and the asphyxiating gas, will so reduce their resistance, that they may become the victims of tuberculosis. This has already proved to be the case. I am sure this Association will agree that the Government will be well advised if they give the returned tuberculous soldier the benefit of sanatorium treatment for a sufficient length of time, before he is sent to his home, this action being taken both for the benefit of the soldier and the safety of his family as well. In fact I am glad to know that the Hospitals' Commission have already taken action on this line, and I am sure we shall be glad to strengthen their hands in this particular and to impress them with its very great importance.

In looking over our printed annual reports for the past few years I have been very much struck with the very able addresses and lectures that have been delivered by the experts and scientists who have so kindly appeared before our Association and given us their views on tuberculosis in its various aspects, and I am pleased to notice that on this meeting's programme, we shall also have the benefit of hearing gentlemen of eminent and scientific attainments, to whom we shall listen with pleasure and profit. The important work in which we are engaged is of incalculable benefit to our population, the success already attained is so great that every encouragement is given to further and more extended operations, and I sincerely believe that our present meeting will only increase our determination to persevere in our efforts to wipe out this great menace of health and happiness in our midst.

PRESIDENTIAL ADDRESS

NEW BRUNSWICK MEDICAL SOCIETY

BY WALTER H. WHITE, M.D.

St. John, N.B.

I DESIRE in the first place to express to you my very hearty appreciation of the honour you have conferred upon me in electing me to the important office of president of the New Brunswick Medical Society. It should be the laudable ambition of each member some day to occupy the chair, and with that object in view to attend the meetings regularly and take an active part in their transactions.

It has been the custom, on occasions such as the present, to give some brief review of the chief medical efforts of the year, but to-day, in our own country at least, the abnormal conditions brought about by the great war have so disturbed the peaceful advance of science that its flame is flickering low and almost completely obscured by the smoke of the battlefield. Human skill and intelligence are being largely directed by the chief nations of Europe toward the destruction of life rather than its preservation. Plowshares are being beaten into swords, and education means learning how to kill. Our boasted civilization and our peace tribunals have culminated in the pitiable spectacle of millions of so-called Christians flying at one another's throats.

At such a time we contemplate with pride and satisfaction the work accomplished by our confrères on the field of battle and in the military hospitals. The conditions are unlike anything before experienced, and older methods have often failed to give the results expected of them.

The war in South Africa, where the last British experience in military surgery was gained, was conducted in a country practically free in the open spaces from pathogenic organisms.

Delivered at the opening session of the annual meeting of the New Brunswick Medical Society on July 18th, 1916.

The most desperate wounds healed readily and extensive injuries to vital organs were often followed by complete and rapid recovery, under these circumstances the treatment was largely expectant.

How different the conditions in the present conflict. The western front, where the British lines are placed, runs through a country, the most densely populated in Europe, which for centuries has been under cultivation. The soil is greatly contaminated, and produces a varied and particularly dangerous flora. To this is added the subterranean methods of warfare rendered necessary by improved offensive, with a result that most wounds are infected and extensive mutilations and death are common. The problem of the infected wound, therefore, is the surgical problem of the war. That this will be solved in such a manner as to be of the greatest possible use to the civil surgery of the future, there is no doubt, despite the great divergence of views among military surgeons at present. The large experience in fractures will also be useful, and in this and other lines as well the experience gained at such heavy cost will in the end mitigate human suffering. Let us hope that one outcome of the war will be the better development of British, and I mean British in its widest sense, facilities for post-graduate study, along general and special lines. There have been in the past too many pilgrimages to Vienna and Berlin as the Mecca of the medical man. Too much prominence has been given the German language and literature in our studies. "Distant hills are always green," and the summer exodus to the clinics of the Huns has become popular and fashionable. All this must be changed. London, Edinburgh, Dublin, to say nothing of the larger cities of the Empire, possess a wealth of clinical material which properly used could satisfy the most exacting, and as the trade relations and general economic conditions will ultimately be arranged for imperial benefits, so, in matters of medical education we should raise up among ourselves a standard than which there can be nothing higher. We may forgive, but this generation can never forget.

And now a few words about our Society. It was founded in 1881, with the double purpose of creating an electorate for five members of the Council of Physicians and Surgeons of New Brunswick, then first established by law, and also to provide the means by which members of the profession in the province might meet together as a scientific body and discuss questions of mutual interest. Previous to the passage of the Medical Act, there was no protection for the public against the quack and the impostor, but

by that enactment the subjects of matriculations, professional education examinations and registration were placed in the hands of the council, together with other important duties.

There is, I regret to say, in some quarters an entire misunderstanding as to the purposes of the Medical Act. It is claimed that it constitutes us a close corporation and that the examinations are used to discourage aspirants, and so lessen competition. Nothing could be farther from the truth. The aim and object of this important piece of legislation is to guarantee that each one who undertakes the responsible duties of a healer of the sick brings to their discharge a reasonable amount of skill and knowledge. I think an examination of the records will show that few candidates are rejected, in my opinion far too few, and they have shown themselves to be insufficiently trained for the practice of their profession.

It is the duty of the Medical Council, as well, to submit an annual report to the Medical Society, and once in every three years an election is held.

I mention these facts to remind you of our medico-political importance, if I may use such a term.

On looking over the programme placed in your hands to-day you will observe that the contributors of papers are, without exception, registered practitioners in New Brunswick. This should be, in my opinion, the normal condition. Doubtless exceptions to the rule may often be made with advantage, but I am thoroughly convinced that in this matter the Society should be self-supporting. It is a great pleasure to meet at our gathering members of our profession from other places, but that we should sit in the gallery while they occupy the stage is scarcely fair to ourselves, and we can have no cause for complaint if we are taken by the public at our own valuation.

The Maritime Medical Society, after a somewhat brief life, has gone out of existence, I think wisely. The Canadian Association meets so often in distant places that a regular attendance by many New Brunswickers cannot be expected. It, therefore, remains for us to make this Society a credit to ourselves and the Province. A live society is no mean educational factor, and is a stimulus as well.

We have no Medical School here, nor can we expect to have one. The larger centres of population, where clinical material is abundant, can alone enjoy that great privilege. It becomes, then, even more important for us to take advantage of all the educational

facilities within our reach. And that brings me to the next and last subject on which I shall touch—the subject of hospitals.

The outstanding feature of the medical practice of to-day is the increased importance of hospitals. The wide scope of medicine has made it impossible for one individual to attain excellence over the whole field, and while the general practitioner does still remain the mainstay of the sick, more and more the principle of the division of labour is being introduced. That this is beneficial, no one can deny, and for its development and useful employment a properly equipped hospital is essential. I do not advocate a narrow specialism, but at least medicine and surgery may be with advantage separated, and pathology and radiography are sciences by themselves, not to be undertaken successfully by practitioners of medicine.

In order that general practice may reach the highest level, the services of experts in these lines should be available. It is not many years ago that the St. John General Public Hospital was the only institution of its kind in the province. It was opened for patients in 1865. Its birth was difficult, and, indeed, it was forced upon an unwilling community by a few far-sighted gentlemen in spite of protest from the Common Council and the press. Under such circumstances it could scarcely expect to be popular. And it was not. The taxpayer complained of the increased rate, while in the eyes of those for whom chiefly it was erected it ranked with, or a little below, the other parochial institutions, the poor house, the jail and the morgue. Even the profession failed, in some cases, to realize that a great step forward in the medical community had been taken, and were far from anxious to fill positions upon its staff. This state of affairs, after fifty years, has to some extent, but to some extent only, been overcome. In other cities we find a pride taken in the hospitals, every facility in the shape of buildings and equipment is provided for regardless of cost, while in St. John we are handicapped in every way. It is true that our end results compare favourably with those of our more fortunately situated colleagues, but unfair that we should be compelled to "make bricks without straw". Even the efforts of the Commissioners to provide the beginning of a proper building were successfully opposed by some gentlemen in authority, although it is well known that the hospital is overcrowded far beyond its capacity.

I write these words in the hope that we may be able to arouse public opinion in this matter, not only in St. John but in the other places where hospitals are established and need further support, that we may be provided with the means of doing better work.

For more than a quarter of a century I have actively practised in this institution, and I may on that account, if on no other, be given credit for knowledge whereof I speak. For many years I have been a "voice crying in the wilderness" for hospital improvement and reform, and if, in the end, the people, who are the ones most interested, awake from their lethargy in hospital affairs, I shall not have spoken and written in vain. A well-equipped hospital staff means an active, progressive staff, and the standard set there elevates the standard of the profession at large.

Who are the gainers by this? The public. A man may sleep more securely in his bed at night, knowing that if he or a member of his family should be seized with a sudden and dangerous ailment the medical or surgical treatment at home is the best that can be procured. Surely the people of St. John will be satisfied with nothing less. The increased tax constitutes a life insurance premium, and a cheap one at that. We spend the public moneys freely to encourage trade and the accumulation of wealth; why not spend a little to safeguard better than they are now safeguarded the health and lives of the people, which are the two greatest assets of a nation? I believe the building and equipping of a modern hospital will do much to accomplish this. While the strengthening of armies and military efficiency are at present the largest public question, let us not forget the lines so often quoted, and so familiar to all of you:

"A wise physician skilled our wounds to heal
Is more than armies to the public weal."

Up to September 1st, 1916, the total casualties among the Canadian Forces are estimated at 37,861. The number is made up as follows: killed in action, 5,998; died of wounds, 2,248; died of sickness, 398; presumed dead after missing six months, 723; wounded, 27,212; missing, 1,282.

PSYCHOGENETIC CONDITIONS

BY COLIN KERR RUSSEL, MAJOR, C.A.M.C.

Granville Canadian Special Hospital, Ramsgate

I AM using this term to include those cases of disability which have, as the main symptoms, motor and often sensory disturbances and which, on thorough examination of the nervous and locomotor systems, show no corresponding signs of organic disease, and which the subsequent history shows to be of a purely mental origin.

These cases may be divided into two main groups:

1. What we have in civil practice diagnosed as hysterical.
2. Malingering.

It is these two conditions which I wish to discuss. It is rather interesting to me to compare my six months' experiences in a general hospital in ——— with almost the same time in this hospital in England. One or two facts seem to me to stand out most prominently:

1. In ——— we never saw hysterical manifestations in a man who had received a shell or bullet wound.

2. In ——— at the time of the ——— affair, during the shooting season one saw numerous cases of men who were brought in apparently deaf and dumb or blind, who lay in bed in a state of nervous exhaustion—possibly throwing the head or limbs from side to side—who would apparently pay no attention to anyone speaking to them, but one saw very few psychogenetic paralyses of limbs, and in every case I did see, I was forced after careful observation and study to come to the diagnosis of malingering rather than that of hysteria.

For example, one man was admitted to my ward with all the outward and visible signs of a right hemiplegia of a severe type. The history of the onset was suggestive. After a foot bath parade, when lined up, the order was given "right turn". He could not "right turn" so he had to "left about turn". Just previous to this he had had pain in the left shoulder. He was very soon made to understand that it was not of an organic nature, and in a confidential interview, he gave me the following story: He was a regular in the

Imperial army and his time, seven years, would be up in one month. Since joining the army he had married and now had three children. He wished to leave the army at the expiration of his time. In spite of my explanation that that would be impossible, as he would naturally go on the reserve list and the reserves had been called out, he maintained that it was quite possible—perhaps later he would join the army Service Corps—and so on. His method of getting out of the Army seemed obvious, but did not work.

I also saw quite a number of cases of convulsive seizures, some, of course, genuine idiopathic epilepsy, but others definitely psychogenetic, and it was in the consideration of these cases that I first came to the conclusion that there was a very close association, especially in the early stages, between hysteria and malingering. In both conditions, at the commencement, there is the same small element of deception, which, if not recognized and corrected early, in the one case, grows enormously because the patient is not deceiving himself; in the other case, the deception does not become so obnoxious, at least, because the patient has finally, by a process of auto-suggestion, or even auto-hypnotism, aided possibly by suggestions of casual examiners, managed to deceive himself as well.

For example, in which category would one place the following case: A young man was admitted to my ward in No. 3 Canadian General Hospital with a diagnosis of epilepsy. The following day we got orders to empty the hospital in preparation for new cases. I sent him to the Convalescent Camp, thinking he could be observed there. In the course of the week he was returned with a note to say he had had two attacks, which were observed by the medical officer in charge, and was now in an epileptic condition and that they could not keep him. I camped in that ward until he had another attack. Fortunately I did not have to wait long, and I saw that it was not of a genuine nature and I put it up to him. His story was this: He had been at the front for twelve months, since the days of the German retreat, and had had no leave. He felt that it was due him. Moreover, he showed me a letter from his sister, stating that his brother had been severely wounded, and it was a question whether his leg could be saved. His aged mother had taken it very badly and was very ill and was praying for his return. He said when he thought of all this he felt so badly that it just seemed to get worse and worse until he had an attack. He admitted that he could control them. I told him that the Army authorities tried to be just and if he had been at the front for

twelve months without leave, it was coming to him, but he must realize that to behave in such a way was really doing the essential part of himself a greater hurt than if he were wounded, and so on, and that if he would play the game, I would send him to the Base with a recommendation for leave. I kept him in a week or ten days longer and the change in him was remarkable. He was bright and active and cheerful around the place, and had no more attacks. Which category is such a case to go in?

Now, in England, I have found a great number of cases of paralysis of either one or both legs or of an arm—of a psychogenetic origin—and relatively very, very few of these have received wounds. Let me detail two histories, as I got them from the patients. I do not propose to show the patients for the reason that they have given me their confidence and I feel strongly that I have no right to abuse it. But if any of you have any doubts you may go and inspect our shrine, which is presided over by Major Smith and myself, and you will see quite a number of crutches, sticks, plaster jackets and splints which have been donated by the faithful. I might add that several beds should have been added to it, but the Government is no respecter of shrines.

One young man came in on crutches, he had become paralysed completely in his right leg and partially in his left. Since using crutches he had developed crutch paralysis in his right arm. There were very marked vaso-motor changes in his right leg and arm, with loss of sensibility to pin-prick. He was told that there was no reason why he should not move all his limbs perfectly. He would not believe this and said that he had tried, not any longer ago than that morning, when in the lavatory alone and could not move them. After talking to him (and it is essential that this be in private) he was soon persuaded to use his arm and to walk perfectly, and he has done so ever since. His story was this: Whilst in the trenches, he had an attack of sharp pain in the right knee. He volunteered the statement that he had not used his leg as much as he might have and it gradually became more and more useless and his left leg became affected. When he began to use crutches he developed crutch paralysis in the right arm. He had been paralysed some three months. He said the reason for his not using his leg was not on his own account, but on account of his mother at home. Since enlisting his grandfather had died, his two brothers had enlisted, and his mother was left alone and he wanted to get home to her. He seemed really grateful for his cure.

Another case shows another source of suggestion: A young

man was admitted with paralysis of both legs of six months' duration. Examination showed a not very robust youth. He had slight power of movement at the knees, none below. Loss of sensibility to pin-prick of the stocking-like variety from knees down. One could stick the pin right through a fold of flesh here and there was no bleeding. Reflexes were not pathological. Although he had to be carried into the examining room he walked back to his ward, up some stairs. He told me the following story: Three of his brothers were at the front. He had paid \$150.00, Western charges, to have his teeth repaired in order that he might be acceptable. After enlisting he had married and had not been able to get his separation allowance. His wife had become pregnant. On a route march from Shorncliffe, during a heavy rain storm, he had to fall out. On reporting sick to the medical officer who happened to be doing locum, he was told that he had weak feet and ankles, and they would always be a source of trouble. He lay around the huts not getting much treatment. Excused duty. Everything wet and cold and he proceeded to get worse. Was admitted to hospital and had been in bed six months and came to us on a stretcher. This man was evidently, in the first place, keen enough, but in the interval he had been supplied with a strong and natural incentive to stay behind. The suggestion of the medical officer fell on fertile soil and sprang up and flourished.

One other patient I wish to bring up. I had for a few days a sergeant who suffered from shell shock and had been in hospitals ever since the end of May last. He was still troubled with marked shaking whenever he raised his leg from the ground. (He had walked in supported by a silver-headed cane.) It was evidently of a purely functional nature. This was explained to him and he was persuaded to stop it and walked out perfectly normally, saying that he would do without his cane. I suggested that it was customary for cases that were relieved of the necessity of using crutches or stick to donate them to the shrine. I was diffident about it because it was a fine cane and must have cost at least three dollars. However, my friend, the sergeant, evidently begrudged the shrine his cane and made a hasty retreat, carrying his cane in front of him, before anything more could be insisted on.

I could quote other cases, but time forbids. There are, however, questions we must ask ourselves:

1. Why do we so seldom see psychogenetic paralysis—apart from malingerers—in ——— and yet see so many here? You may say it is because I am in a special hospital here where these cases

are collected. Possibly there is some truth in that, but I do not believe it is the whole truth. Others in —— with long service have told me that they have had the same experience there. It is a question to consider.

2. Why do we so seldom see psychogenetic conditions in men who have received a wound and never in cases where the wound is serious? The reason seems to be obvious. They have received an honourable wound and have earned their passage to "Blighty", and there is no reason for them to invent any further disability to attain their desire.

3. Why did my friend, the sergeant, begrudge his silver-headed cane to the shrine in being cured? The next patient, who had a lesion of the sciatic, replied, when he was asked if he would give a similar cane to the shrine if we cured him in fifteen minutes, "Just try me—I would give a deal more than that."

Was it not that in spite of his disability of almost a year's standing, he felt himself that it was not as serious as it looked? I repeat, therefore, that in the beginning of all these psychogenetic conditions, there is primarily an element of deception. In some cases, who may be specially constituted mentally, they manage at last to deceive themselves—in others one finds the pure malingerers. In the first group it is difficult to determine how much the patients themselves are deceived, but one can readily realize that the longer they are allowed to go on deceiving themselves, the more difficult will be their disillusionment.

THE seventh annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Milwaukee on the 19th, 20th and 21st of this month.

MALIGNANT ŒDEMA

BY LIEUTENANT-COLONEL F. MCKELVEY BELL, M.D.

*Acting Deputy Director-General of Medical Services, Ottawa. Formerly Surgeon to No. 2 Canadian Stationary Hospital, France.
Surgeon to St. Luke's General Hospital, Ottawa.*

MALIGNANT œdema (septic gangrene), while a very rare disease in civil life, is comparatively common in military hospitals at the front. During a period of six months, while in France, no less than twelve cases of this condition came under the observation of the writer.

The reasons for the incidence of any anaërobic infection in gunshot wounds during the present war are apparent:

(a) The battle front was formerly thickly populated, and is largely rich agricultural land.

(b) Men who have to sleep on ground which is highly infected both by manure and the rotting carcasses of men and animals, are bound to have their clothes contaminated.

(c) Shrapnel and pieces of high explosive shells carry scraps of infected clothing deep into the wounds.

(d) The depth and irregularity of the wounds favour the growth of anaërobic organisms.

(e) The impossibility of immediate treatment in many cases.

As is well known, during daylight the Germans will not permit the collection of the wounded in any area, which they can cover with their gunfire. Men often have to lie where hit for several hours, until nightfall permits their collection by the stretcher bearers.

Septic Gangrene is a disease which, for rapidity of onset and disastrous effect, has few equals. If the surgeon is to save his patient, treatment must be instituted from the moment the disease is suspected. One must never wait to confirm suspicion by bacteriological examination; it will usually be too late for treatment if one looks for bacteriological confirmation, and one must remember,

too, that a negative laboratory report does not necessarily mean that the infection is not present. The difficulty of getting a definite swab from a deep or irregular wound is obvious.

The mortality of septic gangrene in other wars has been as high as 90 per cent. It will not be nearly so high in the present war. Where treatment can be instituted at an early moment, the mortality should be exceedingly low.

The disease originates most frequently in a large bullet or shell wound; usually deep in the channel of exit. Its onset is insidious, but rapid.

SYMPTOMS

If we view the symptoms from the order of sequence in which they may be observed, the first noted is a vile, pungent odour of remarkable penetrating power, capable of permeating a large hospital ward. It can only be compared to the odour of dead blood in a large wound when scented at close range, but intensified a hundredfold.

This symptom is so prominent and characteristic, that when once encountered, it will never be forgotten. The sense of smell has been accredited with being the most powerful aid to memory; and such a recollection as this is not likely to be erased.

The wound is black, instead of red; and, at first, appears to be filled with decomposing blood clot, from which on pressure, or often without, bubbles of gas issue.

The surrounding skin for several inches is often dark in colour, a smooth, spreading pseudo-ecchymosis about the colour of iodine stain. The mottled appearance of true ecchymosis is absent. (From the surgeon's point of view at the commencement, the limits of the colour may be taken to represent the limit of the disease.)

In a few hours the wound may present one of two phases; it either becomes dry and black, having an appearance of being seared with the actual cautery; or in other cases it presents a dark, greyish slough, not unlike diphtheritic membrane.

At the end of twenty-four hours, the limb commences to swell, owing to gas in the tissues; and in a few hours becomes markedly "cedematous".

On pressure, one can sometimes—but not always—elicit gas crepitus. The limb gradually becomes enormously enlarged, and the skin, now drawn taut, presents a shiny appearance.

At the end of forty-eight hours, if the patient lives so long, the

face assumes a sickly greenish pallor and the expression becomes anxious. There is no change in the mentality; patients remain rational to the last.

The pulse presents the usual features of a grave toxæmia. In the cases under observation, it ranged from 104 to 128.

While the temperature in these cases ranged from 100° to 105° F. it is quite possible that most of this fever was due to complicating staphylococcic organisms, for in the most severe case of all (which, by the way, recovered) the maximum did not exceed 101°. The respirations were in direct ratio to the temperature.

TREATMENT

The treatment, to be useful, must be radical and immediate. Every hour lost increases the chance of death, out of all proportion to the apparent danger.

In these cases, deep incisions, under chloroform, were made almost to the bone by means of a six-inch blade amputation knife; due care, of course, being taken to avoid main arteries or nerves. These incisions were four inches to six inches in length; they were afterwards kept wide open with fenestrated rubber tubes, one inch in diameter and six inches long, passed on transversely through the muscle to a counter incision. Not less than three, and in one case six, of these large incisions were made.

The wounds were then irrigated with large quantities of H_2O_2 , followed by a combination of H_2O_2 and acid carbolic 1-100, in equal parts.

The wounds were packed lightly, but only temporarily, with gauze, which was left in just long enough to check bleeding. Dressings and irrigation were repeated every three hours, night and day. After the first dressing no gauze was left in the wound, but a very thin layer, (two or three strips only) was laid over the opening to exclude dust and flies. No bandages were used. A high cradle held the bed clothes up, in order to admit plenty of air, and where possible the wound was exposed to direct sunlight.

The wounds have a great tendency to close, on account of pressure of gas in the tissues; and this unless prevented by the surgeon, will bring about the anaërobic conditions we are trying to overcome. Moving the rubber tube about, and spreading the tissues by inserting a pair of closed artery forceps into the wound, and withdrawing them while open, will prevent this accident.

PROGNOSIS

Of the twelve cases treated, four died. The first of these because, as it was only a skin abrasion, and the disease was new to us, we treated it superficially only, without incisions.

Two other cases were moribund on admission to hospital. These should not be included in the statistics, as they were both quite pulseless, and radical treatment was not attempted.

The fourth case was a compound comminuted fracture of the femur, at its upper third. An attempt was made to save the limb, and several valuable hours were thus wasted. The amputation, which later proved inevitable, was not successful in checking the spread of the disease. I believe that, had the amputation been performed early, this man's life would have been saved.

The impression of the writer is that in cases of septic gangrene complicated by compound fracture, amputation is the safer procedure.

Results.—In this small series 80 per cent. of all cases treated recovered; 90 per cent. of all cases treated by deep incisions, H^2O^2 , etc., recovered.

Special night and day nurses were employed on all these cases, and this, undoubtedly, was a strong factor in the good results secured.

EPIDEMIC MENINGITIS

BY W. T. CONNELL, M.D.

Professor of Pathology, Queen's University, Kingston

OWING to the development of a number of cases of this disease in the Canadian and British armies an opportunity has arisen for the careful study of the etiology, means of spread, and treatment of this affection. Practically all are agreed that the causal agent is the diplococcus intracellularis, more commonly named the meningococcus, though this etiological relationship is called in question by Hort in a paper appearing in the *British Medical Journal*, January 29th, 1916, p. 156.

The meningococcus has very little capacity for resistance outside the body, tending to die rapidly when dried, or even when cooled down for three or four hours in naso-pharyngeal secretions or in cerebro-spinal fluid, though retaining its vitality for several days in the latter if kept at body temperature. This lack of definite resistance means that this bacterium can be transferred only by contact with the fresh secretions of patients or carriers. It has long been known that the point of entry is *via* the nose and naso-pharynx and that the secretions from these parts are the infecting agents.

In a series of papers appearing in the *British Medical Journal*, March 20th, 1915, p. 493, and May 15th, 1915, p. 836, Lundie, Thomas, Fleming and Maclagan insist on the protean nature of the disease and define the infective processes arising from infection with the bacterium as divisible into three stages, viz., the catarrhal (naso-pharyngeal), septicæmic and meningeal stages. I am in thorough agreement with their findings as a result of recent experience in a limited outbreak among the military and civilian population of this district. Personally I have seen seventeen cases of meningitis, eight being soldiers and nine civilians, while a number of others have occurred throughout the district. In addition to these actual cases over two hundred carriers have been detected

Read before May meeting, 1916, of the Kingston Medical Society.
Received for publication July 28th, 1916.

and isolated till germs have disappeared from naso-pharynx. All cases and every carrier showed a definite naso-pharyngitis, in the former as an initial symptom. There is nothing that is characteristic in this condition and its severity varies from a mild catarrhal condition of which the patient makes light, to a fairly severe acute pharyngitis with purulent discharge. Less than 10 per cent. of those so attacked pass on to second stage in which the bacteria spread *via* the lymph to the blood stream, the septicæmic (bacteriologically) stage, leading to more or less general systemic disturbance as evidenced by fever, headache, pains in muscles and bones and more or less prostration. With the accompanying naso-pharyngitis, this clinical condition is usually diagnosed influenza, and indeed corresponds in all respects with the usual influenza attack. In this systemic invasion there may be localization of the meningococcus in the pleura, pericardium, or joints, but the meninges of brain and cord are parts selectively attacked. A fair percentage of cases showing the septicæmic stage do not progress beyond this to stage of meningeal involvement. Yet it is only when there are cases of meningitis that the possibility suggests itself that these are instances of meningococcus infection, and such a possibility can only be corroborated by bacteriological examination. The meningeal invasion marks the third and most serious stage of the disease, but it is only then that the cases ordinarily become clinically recognizable as such. The time elapsing between development of the pharyngeal symptoms to the meningeal invasion may in some cases be run through in a few hours, while in others the period may extend to one week, the usual history being from one to four days. The symptoms presented by such invasion show considerable variation and may be discussed under different headings.

1. Headache. In my cases this has been a constant and persistent symptom and practically always of severe type. The pains are usually stated to be all over the head but most severe in the occiput.

2. Pains in neck, back and limbs are nearly always associated with headache and are more marked on attempted movement, especially is this the case on head movement. Hyperæsthesia frequently is associated, and is particularly common in children.

3. Rigidity of neck muscles, best elicited on attempting to bend head forward, is an almost constant symptom and accompanied by slight to marked retraction of the head. The marked

degrees of retraction are seen usually in children, while adults more often show only slight degrees of this condition.

4. Vomiting, too, is a fairly constant symptom. In three out of my seventeen cases I could not get any evidence of this symptom, the others suffering in varying degree.

5. Fever is a constant accompaniment and runs from 100° to 103° F. The pulse is usually rapid, rising in adults from 90 to 100 in the earlier meningeal stage, becoming more rapid as symptoms develop, though in the later stages it may slow down to 60 or lower, while before death it usually rises rapidly. Respirations show very similar range.

6. Kernig's sign as a rule is a late development but when elicited is of marked value in diagnosis.

7. An eruption appears in about two thirds of the cases and varies in character from an erythematous blush to petechial or even distinct purpuric spots.

8. The *tache cérébrale* can be demonstrated in most cases but has no special diagnostic value in epidemic meningitis.

9. The mental condition shows considerable variation. In the earlier stages patient is irritable, at times becomes delirious and even maniacal. Most cases later show depression advancing to stupor with periods of delirium, this changes to deep stupor and coma as case progresses.

Personally I would consider a case presenting a history of a catarrhal pharyngitis with fever, headache, rigidity of neck muscles and vomiting, as sufficiently suspicious to justify lumbar puncture. This simple surgical procedure, with examination of the cerebro-spinal fluid, will clear up the diagnosis, if there is actual meningeal involvement. Properly done with usual aseptic precautions, it is harmless in any case and should be employed much more freely than it is by medical practitioners. It is quite true that by following this rule, an occasional case is found where the symptoms have been produced by toxin action rather than by bacterial infection; a meningismus not a meningitis.

In any acute form of meningitis the fluid will be turbid, varying from a faint milky to distinctly purulent fluid. In tubercular meningitis of course, one gets a clear fluid but this shows a definite globulin increase on chemical examination while lymphocytes are increased and a delicate cobweb coagulum develops in the fluid on standing. In acute meningitis from other causes there is always definite albumin and globulin increase and polymorphonuclear leucocytes are present, while microscopic examination after staining

of smears will usually reveal the causal organism. Apart from those forms of meningitis secondary to middle ear disease or other infective process about skull, the pneumococcus and the influenza bacillus may be causes of an acute meningitis. Clinically, however, in the absence of definite middle ear disease or other infective lesions about skull, if I found turbid cerebro-spinal fluid, I would treat the case as one of possible meningococcus infection pending microscopical and bacteriological examination. Such treatment will do no injury even if infection proves to be other than meningococcal, while if of this type much time is often saved, especially if fluid has to be sent some distance for examination.

While direct microscopical examination often reveals the causal organism, this is not always the case. Very careful search of fluids obtained from two of my cases did not show any meningococci but these developed on culture. Such findings are not uncommon in fluids obtained early in the meningeal invasion while later usually no difficulty is noted in their detection. Nor are the meningococci always intracellular. In a case of an infant of ten months, examination of the fresh cerebro-spinal fluid revealed very large numbers of extra-cellular diplococci, none intracellular. On incubating this fluid over night, the polymorphonuclear cells were found to have taken up these diplococci so that practically all were intracellular while culture gave typical meningococci. Owing to the fact that meningococci die readily, it is very important for physicians to remember that cerebro-spinal fluid (or cultures therefrom) should be kept at body heat till cultures are made and placed in incubator. It is only by attention in this respect that cultures can be assured. Various bacteriologists use different culture media for culturing the meningococci such as blood-agar, ascitic fluid agar, modified egg media and blood serum. Personally I have had excellent success in isolating meningococci on modified Loeffler's serum, using beef blood serum containing numerous disintegrated red blood cells making when coagulated a black medium on which the colonies are readily seen and recognized.

Bacteriological and especially serological tests have proven positively that there are several different strains of meningococci. These differ particularly in their serological relationships so that a serum active against one strain may be very slightly active or actually inert against another strain. In consequence serums used in treatment should always be polyvalent in character and preferably made by using for immunization of the serum producing animals the strains of meningococci active in producing the disease in the province or locality infected.

TREATMENT

As soon as diagnosis is confirmed by lumbar puncture, serum treatment should be instituted, using a polyvalent serum. As much fluid as will run away freely should be allowed to drain out through puncture needle, the amount varying from 30 to 60 c.c. in adults and then by gravity a smaller amount of the serum should be allowed to flow in, from 20 to 30 c.c. being sufficient for first treatment. At once, too, 5 to 10 c.c. of the serum should be injected intravenously and about 10 c.c. intramuscularly. The intraspinal and intramuscular injections are repeated in twelve hours and then every twenty-four hours till fever falls and symptoms abate. This method differs from common practice in using the intravenous route at first treatments with depôts in muscle to continue feeding of serum into blood. This is the logical outcome of our knowledge that the mode of extension is *via* the blood stream to the meninges and in consequence the meningococci in the blood and other foci of lodgment in tissues must be attacked. I have treated my last fifteen cases in this way and all but one have recovered. Three other cases (soldiers) in this military division, similarly treated, have also made excellent recoveries. Further, eleven of my fifteen cases so treated became afebrile and systemic and cerebral symptoms disappeared in from two to four days after institution of treatment. Two of the fifteen cases despite this treatment ran a prolonged febrile course of eighteen days, while one remained febrile for ten days. The meningococci isolated from the two cases running prolonged febrile course show some cultural differences from those found in other cases and I believe are a different strain against which the serum employed (that furnished by the Provincial Board of Health) was not very active. This question is now under investigation.

All the adult cases were given urotropin (formin) in ten grain doses every three hours for two or three days, dropping to half this quantity for a similar period. I cannot state that such treatment has had any definite curative results. In one case the urine became blood tinged and the remedy was discontinued. As meningococci are excreted at times in the urine, the use of formin can be advocated on this ground. Other treatment is purely expectant. The bowels should be kept open by use of salines and patients should be well nourished.

Two of my cases died. The first of these, a soldier, died within twenty-four hours after admission. This man had been ill

two days but his chums had freely supplied him with liquor and he came down with his squad when transferred to Kingston. Considering him to be deeply under the influence of liquor, he was placed in detention on his arrival but on examination several hours later by a physician it was evident that he was ill and he was sent into hospital where he arrived deeply unconscious, with temperature 102° F., and heavy breathing and a spotted rash over trunk. Lumbar puncture was performed and diagnosis of meningitis confirmed. This man got intraspinal but not intravenous serum injections.

The second case, also a soldier, did not come under my observation till ninth day of illness when I found him in condition of marked stupor with temperature 102½° F., pulse 104, respiration 44. On attempting to move head forward, he cried out. Marked systolic murmur over apex, urine involuntary. Serum treatment gave no amelioration of his symptoms and he died on the eleventh day, two days after treatment was instituted.

Of the fifteen cases which recovered only one had complications, but these were of serious character. A baby of seventeen months whose case ran a prolonged course responding poorly to treatment, developed a purulent irido-cyclitis on second day in both eyes, which led to loss of sight in both. I have seen this child recently and except for eye condition, she appears to have made a complete recovery.

What must be done to check the spread? As there are at least twenty times as many persons infected with meningococcus as develop meningeal symptoms, one finds almost invariably that about an actual case of meningitis there is a circle of carriers, and this circle becomes wider if an attempt is not made to control these carriers. Pending a bacteriological examination all contacts should be isolated. My findings confirm the observations of Lundie, Thomas, and Fleming that all carriers have some grade of naso-pharyngeal catarrh though this may not be of sufficient grade to be noted by carrier, though readily recognized on examination. Thus when a case occurs in a battalion, not only should all those who sleep in the room with infected individual, but all men in the company with coughs and colds should be sent for bacteriological examination. Further, of those released after first examination, any who develop any nasal or pharyngeal catarrh within the next week, should be at once sent for re-examination.

As a result of observations made in examination of possible contacts, I have come to lay greater stress on the direct micro-

scopic examination of smears made from naso-pharynx than upon the examination of cultures, especially in making the preliminary "weeding out of possible carriers". Swabs are taken by use of the bent naso-pharyngeal tube designed by Mr. West, of St. Bartholomew's Hospital, and smears are at once made on slides, dried and stained by Gram's method, counterstaining with pyronin. Any case showing pus with Gram negative diplococci either intra or extracellular are held as suspects. These cases are reexamined on second day thereafter both by smear and culture methods. Any cases showing Gram negative intracellular diplococci in pus cells are held, while cultures are examined of the cases showing Gram negative cocci extracellular for possible meningococci. Our experience, however, would go to show that when two findings, three days apart, are reported of absence of Gram negative intracellular diplococci in smears, those cases may safely be discharged from isolation. Nasal sprays and gargles of permanganate of potash 1 in 1000 to 2000, or of diluted Dobell's solution, can be used by men in isolation, though I cannot say that these or stronger solutions hasten the disappearance of the organism. Most of our cases cleared inside of ten days, but a few cases showed persistence of the organism up to six weeks.

We advocated the use of meningococcus vaccines as a preventive measure, but only about fifty took advantage of the procedure. None so vaccinated took the disease but of course the number was entirely too small to draw the slightest conclusion. Only one soldier was detected as a carrier and ordered to be isolated who later developed the disease. This man was examined on the day before he became sick and two days before meningeal symptoms manifested themselves. A provisional diagnosis of meningitis was made on his taking sick but he was not referred to me till definite meningeal symptoms had appeared.

PERIOD OF INCUBATION

In six of my cases the history of exposure is fairly definite and gives me some data as to period of incubation. In one case the incubation period can be fixed between seven and nine days, in another as not more than eight days, in a third as between ten and eleven days, in a fourth as not more than eleven days, in a fifth as not more than thirteen days, while the sixth case (a nurse) the period is definitely fixed as thirteen days.

SUMMARY

1. My observations on these cases and on carriers lead me to approve of the conclusions of Lundie, Thomas, Fleming, and Mac-lagan that meningococcal infection passes through three stages, viz., catarrhal, bacteraemic and meningeal.

2. Clinically except in times of epidemic it is impossible to recognize first two stages. A bacteriological diagnosis would be required in the absence of known cases of meningitis as no suspicion would arise as to nature of such infections.

3. Not more than five per cent. of those infected with the meningococcus pass to third or meningeal stage so that about every actual case of meningitis there is a circle of carriers.

4. Control of this disease depends entirely on detention and isolation of the mild cases (the carriers), most of whom in the catarrhal stage are not definitely ill.

5. Detention depends on bacteriological examination of nasopharyngeal swabs and in my experience direct microscopic examination of smears gives results at least equal in efficiency to cultural methods; can be carried out much more rapidly and at a distance from a laboratory.

6. Lumbar puncture and examination of the fluid withdrawn is essential to establish case as positively one of epidemic meningitis, though in absence of definite local causes as middle ear disease, every case showing a turbid fluid should be considered and treated as an epidemic case pending results of such examination.

7. As the disease is a systemic as well as meningeal infection, specific treatment by injection of a good polyvalent serum, intraspinal, intravenously and intramuscularly is indicated once diagnosis is made. The intraspinal and intramuscular injections should be repeated in twelve hours, then every twenty-four hours till fever falls and cerebral and general symptoms abate.

SUMMARY OF CASE REPORTS

CASE I. Sergeant C—, aged twenty-four years. Reported ill February 2nd, 1916, with cold in head, pains in back and limbs, temperature 101° F. Sent into hospital next morning with diagnosis influenza and showed on admission temperature of 100 4-5° F. and complaining of headache, stiffness of neck and back muscles with pain on movement. He vomited several times during day and was delirious at times, with dazed stupor in between. First seen by me on afternoon of February 4th, when patient was unconscious, head retracted and rigid, Kernig's sign positive, petechial rash over body. Lumbar puncture gave a turbid purulent fluid with abundant polymorphonuclear leucocytes and meningococci in smear and on culture. 35 c.c. spinal fluid withdrawn and 20 c.c. Squibb's antimeningitis serum introduced intraspinal; two doses

at twelve hour intervals given on 5th of 15 c.c. and two on 6th, one on 7th, 8th, 9th, 10th, 13th, and 16th. Patient became afebrile on February 18th, the febrile stage thus lasting sixteen days. Recovery complete without complications.

This man, seven days before admission to hospital, was at funeral of his brother who undoubtedly died of meningitis.

CASE II. Private S—, aged seventeen years. On February 2nd complained to chums of feeling sick, with headache and sore throat. Took whiskey and was placed in detention night of 2nd and all day 3rd, as drunk. During this period he vomited several times. Came with his squad to Kingston, February 4th, and got fresh supply of whiskey en route, and being noisy and not able to walk without support was again placed in detention room on arrival. Visited by Medical Officer late same evening who pronounced him seriously ill and sent him to hospital. Seen by me in morning when he was deeply unconscious, head rigid and retracted, temperature 102° F., pupils widely dilated, an erythematous rash with some petechial spots over trunk. Lumbar puncture gave a markedly purulent fluid under great pressure; 60 c.c. withdrawn and 40 c.c. Squibb's serum introduced. Had several convulsions during day. Treatment repeated in twelve hours. No response, patient dying following morning, autopsy confirming diagnosis.

Infection cannot be traced in this case.

CASE III. Private C—, aged sixteen years. On February 12th reported sick with cold, pains in head, back and limbs, and was sent into hospital as case of influenza; worse during night, vomiting and becoming stuporous. Seen by me morning February 13th when he had temperature of 103° F., semi-stuporous but crying out at times and holding head, head rigid. Lumbar puncture showed a purulent fluid with meningococci in smear and on culture, 60 c.c. spinal fluid withdrawn and 40 c.c. Ontario Board of Health serum injected intraspinal, 10 c.c. each intravenous and intramuscular. Same evening 15 c.c. intraspinal and 10 c.c. intramuscular and this dose repeated on 14th and 15th February. Afebrile on fifth day. Recovery complete. This man in same barrack room with men who accompanied Case II. on night February 4th, but was transferred next day to other quarters. Period of incubation not more than eight days.

CASE IV. Miss H—, nurse, aged twenty-one years. Nursed Case I. night of February 3rd and was taken sick with headache and vomiting afternoon February 16th, grew worse during night. Seen by me morning February 17th, when symptoms were typical of meningitis. Lumbar puncture confirmed diagnosis. Withdrew 30 c.c. spinal fluid and gave 20 c.c. serum intraspinal, 10 c.c. intravenous and 10 c.c. intramuscular. Repeated the intraspinal and intramuscular dose same evening and on February 18th and 19th. Afebrile on third day of treatment. Recovery complete.

Period of incubation thirteen days.

CASE V. Private H—, aged seventeen years. First fell ill afternoon of February 16th, with headache, sore throat, pain in neck and back and had attacks of vomiting during night. Sent into hospital morning February 17th, when I made diagnosis of meningitis, but lumbar puncture gave a clear fluid with no cell or globulin increase, no meningococci. During the next twenty-four hours the patient became more ill, symptoms of meningeal irritation grew more marked and lumbar puncture on February 18th gave a turbid fluid with meningococci on culture. Given intraspinal injection 20 c.c., intravenous 8 c.c. and intramuscular of 12 c.c. serum. Repeated same evening and next day the intraspinal and intramuscular injections. Afebrile on fourth day after admission. Recovery complete. This man had slept in same room as Case III. Incubation not more than ten to eleven days.

CASE VI. Wilfred S—, aged seventeen years. Had to leave work afternoon February 18th on account of severe headache. He had developed a "cold" the day previous. He vomited twice during night and was so ill in morning that Dr. Sparks

was called in and diagnosed meningitis and asked me to see patient. Patient was restless and delirious, lapsing into stupor at times; neck rigid, Kernig positive. Temperature 101° F. Lumbar puncture gave a turbid purulent fluid with meningococci direct and on culture. Gave 20 c.c. serum intraspinal, 10 c.c. intravenous and 10 c.c. intramuscular. Repeated former and latter in twelve hours. Afebrile on second day. Complete recovery.

CASE VII. Gunner M—, aged nineteen years. Developed a cold and sore throat on February 25th and reported ill next day toward evening. Sent into hospital February 27th as case of influenza, but during night of 27th grew worse and I saw him morning of February 28th, when case was definitely meningitis. Lumbar puncture gave a purulent fluid with meningococci. Gave 25 c.c. serum intraspinal, 10 c.c. intravenous and 10 c.c. intramuscular. Repeated former and latter in twelve hours. Afebrile on third day. Recovery complete. This man came from Toronto February 21st, so that if infected after arrival, period of incubation would be four days. Patient came down with a draft from Toronto.

CASE VIII. E. G—, aged thirty-four years, insurance agent. Took sick February 17th with headache and pains in back with rigidity neck and back muscles and cold in head. Temperature 99° F. He at times was delirious and remained in this condition till admitted to hospital March 5th, i.e., seventeen days after illness began. I saw him afternoon March 5th, when he was in a stuporous state rousing at times into delirium. Temperature 99 2-5 F., neck rigid, positive Kernig. Lumbar puncture gave a slightly turbid fluid with scanty polymorphonuclears and meningococci. Gave 15 c.c. serum intraspinal, 10 c.c. intravenous and 10 c.c. intramuscular. Repeated the former and latter in forty-eight hours. Patient rapidly improved after second dose and made complete recovery. Case was apparently one of posterior basic meningitis.

CASE IX. Gunner N—, aged twenty-one years. On March 5th this man reported sick with headache and cold in head. Sent into hospital next morning with headache, vomiting, neck stiffness, temperature 101 1-5° F., and a positive Kernig. Lumbar puncture gave a turbid fluid with meningococci in smear and on culture. Intraspinal serum 20 c.c., intravenous 8 c.c., and intramuscular 12 c.c. Former and latter repeated next day (March 7th) and March 8th. Afebrile on fourth day. Recovery complete. Incubation period indefinite but not more than thirteen days.

CASE X. Florence C—, aged seventeen years. Took sick March 7th at Yarker. Sent to Kingston Hospital March 9th, showing headache, marked general hyperæsthesia, rigidity of neck, vomiting and positive Kernig. Lumbar puncture gave a turbid purulent fluid with meningococci in smears and on culture; 40 c.c. spinal fluid withdrawn. 15 c.c. serum given intraspinal, 10 c.c. intravenous and 10 c.c. intramuscular. Former and latter dose repeated following morning. Afebrile on second day after admission. Recovery complete.

CASE XI. Mrs. F—, aged twenty-eight years; lives four miles in country. Called in Dr. M— on March 7th for vulvo-vaginal discharge which the doctor diagnosed as gonorrhœal and sent patient into hospital for treatment. She was free from temperature for first two days but on evening March 9th felt generally ill and complained of headache. Next day sicker and vomited several times while toward evening she sank into a stupor. I saw her at midnight when symptoms were clearly those of meningitis, confirmed by lumbar puncture; 20 c.c. serum given intraspinal; 8 c.c. intravenous and 12 c.c. intramuscular. Intraspinal and intramuscular injections were repeated on March 11th, 12th, 13th, 15th, 17th, 22nd, 24th, 26th. Beginning March 20th a vaccine of mixed gonococcus and meningococcus was also employed, being repeated every fourth day. The gonorrhœal infection spread to uterus and tubes causing much pain and distress. Patient became afebrile eighteen days after onset. Convalescence was slow but recovery complete. Meningococcus was readily iso-

lated from spinal fluid and naso-pharynx and the gonococcus from the vaginal discharge. Likely double infection was communicated by same individual.

CASE XII. Baby H—, aged seventeen months. Took sick March 17th, with vomiting. Dr. C— called March 18th and found child feverish, markedly hyperæsthetic, vomiting and head retracted. I saw her March 19th and did lumbar puncture getting a markedly purulent fluid. Gave 10 c.c. serum intraspinal, 2 c.c. intravenous and 8 c.c. intramuscular. Repeated former and latter in twelve hours and on second, fourth, sixth, eighth, eleventh, eighteenth, twentieth and twenty-second days of illness. On March 21st both eyes showed a purulent iridocyclitis which completely destroyed sight. Otherwise child has made a good recovery.

CASE XIII. Baby H—, aged ten months. Took sick April 2nd. Dr. M— called April 3rd and diagnosed meningitis from vomiting, head retraction, fever. Lumbar puncture gave turbid fluid with meningococci. Intraspinal serum given 5 c.c., intravenous 5 c.c., and intramuscular 5 c.c. Former and latter repeated next day (April 4th) and on April 5th. Case afebrile on fourth day. Recovery complete.

CASE XIV. Boy W—, aged seven years; from Tamworth. Seen by Dr. O'C— on April 9th for a "bilious cold". He grew gradually worse and on the 13th was sent into hospital under care of Dr. Gibson who diagnosed meningitis, performed lumbar puncture, getting a turbid fluid with meningococci present. Gave serum intraspinal 15 c.c., 8 cc. intravenous, and 8 c.c. intramuscular. Repeated former and latter on April 14th. Afebrile on morning of third day after admission. Recovery complete.

CASE XV. Private J. B—, aged twenty-two years. On May 4th patient developed a cold in head with some headache. On May 6th was quite sick complaining of severe headache, vomiting, temperature 102° to 104 1-5° F. During night lapsed into stupor. Next day sent to Brockville Hospital where same symptoms were prominent. Case diagnosed May 8th as meningitis. Captain Hall went down from Kingston, did lumbar puncture, getting a turbid purulent fluid showing meningococci. Gave 20 c.c. serum intraspinal, 10 c.c. intravenous and 10 c.c. intramuscular. Repeated dosage May 11th. Afebrile on fourth day after serum first used. Complete recovery.

CASE XVI. H. S—, aged twenty-two years (Switzerville). Patient had slight sore throat with pains all over and some headache on June 5th. Next day worse and called in Dr. Macaulay of Newburgh on account of severe pains in back and limbs. During next three days cerebral symptoms became more marked. I saw him in consultation June 9th. Found patient with temperature 101 2-5° F., pulse 120, neck stiff and painful, head slightly retracted, Kernig positive; stuporous, but would answer when questioned. Lumbar puncture gave a turbid fluid showing meningococci. 30 c.c. serum given intraspinal and 10 c.c. intramuscular. Dr. Macaulay repeated this treatment on June 10th, 11th, 12th, 13th, 14th and 16th, seven doses in all. Recovery complete. No intravenous injection given.

CASE XVII. Sergeant S—, aged forty-one years. Took sick June 12th with headache, vomiting, slight sore throat and pains all over. Sent to Military Hospital where condition was diagnosed as rheumatism and later as complicated by nephritis. I was asked to see him June 20th, the ninth day of his illness. He was unconscious but cried out when I attempted to move his head. Neck rigid, Kernig positive, temperature 102° F., pulse 104, respiration 44; marked systolic murmur at apex with diffuse cardiac impulse. Urine involuntary but catheter sample showed abundant albumin and casts. Lumbar puncture gave a purulent fluid with many meningococci. 20 c.c. serum given intraspinal, 10 c.c. intravenous and 10 c.c. intramuscular. Former and latter repeated next morning but there was no response. Death on 22nd June. Autopsy confirmed diagnosis of epidemic meningitis.

POSTURE AS AN AID TO TREATMENT

BY MAJOR S. A. SMITH, C.A.M.C., D.S.O.

Granville Canadian Special Hospital, Ramsgate

WITH the very limited time at my disposal I merely wish to mention a few salient points upon what is really a large subject, and to particularize in certain types of cases which appear to be fairly common, judging from the number of instances that we have seen during the past three months. I refer to deformities of the wrist and fingers.

Cases of deformity in many instances would not have been so severe in nature nor so long under treatment if postural treatment had been instituted at the outset. It is immaterial as to whether one expects a fixed or a movable joint to be the outcome, the main idea is always to place the limb in the most advantageous position for use.

This axiom covers such a large and diverse field including septic and tuberculous disease of joints, amputation, injuries to nerves, bones, ligaments and muscles. This is doubly true since we are now seeing the results of continued suppuration to a much greater extent than we ever did in peace time and we have thus to combat the vicious contracture of scar tissue.

In a short communication of this nature I cannot enter the large subject of the prognosis of joint injuries as to whether mobility or fixation is to be the result. I can, however, state that with injuries round joints due to wounds it is by far the safer plan to adopt (if one is uncertain) a safe policy of suitable posture and fixation rather than an enthusiastic and heroic campaign of continued joint movements and aim for an ankylosis in a suitable position.

I may add that after gunshot wounds, even where the joint has apparently escaped, the degree of latent infectivity is such that after forcible movements the tissues react in a more alarming way than we have been accustomed to experience. Speaking

Read before the Medical Society of the C.A.M.C., Shorncliffe, at the meeting at Ramsgate, April 24th, 1916.

Received for publication July 31st, 1916.

generally then we assist the weaker group of muscles by such postural fixation as will prevent their action being overcome by their stronger opponents, and where there is the formation of scar tissue this must be constantly kept on the stretch by rotation to prevent its contracture.

To particularize—in suppuration from gunshot wounds it is necessary to keep the knee extended—the foot at right angle with the leg—the wrist hyperextended—the elbow flexed to 100 degrees and the shoulder slightly abducted. To show how this work is being overlooked I may mention that I have in the past month divided the tendo Achillis in six instances for septic wounds in the calf of the leg where the case was nursed without regard to the future deformity. I have removed the scar in one case and forcibly stretched it in two others in popliteal wounds where the leg was allowed to flex at the knee. The patients were all apparently allowed to walk with crutches on their sound leg, the injured leg being tucked up out of the way. In all these cases it was necessary to tenotomise the Achilles.

I have had to re-amputate in two cases owing to lack of postural treatment—both were seat of election amputations—one having a very short tibial stump. There was so much contracture at the knee that extension beyond a right angle was impossible. Wrenching and even full division of the posterior ligament of the knee joint was unavailing so I was forced to do a Critti-Stokes.

Contracture of the psoas in amputations through the thigh is the rule rather than the exception owing to the use of stump pillows in cases that suppurate. Means of avoiding these results are so obvious that it is unnecessary to say more.

I intend to particularize in conditions of the hand and forearm and to show the types of apparatus that are in use here for the prevention and cure of deformity.

I might divide the cases into, (a) paralysis, (b) contracture, although obviously (b) may complicate (a).

SECTION A. *Paralysis*. Let us take musculo-spiral paralysis, for example, in the first class, due to bullet shell fragment, callus overgrowth, the sharp edge of bone in a spiral fracture piercing the nerve, in axilla method of shoulder reduction—we have examples of them all. Here the long cock up splint is applied, made of 22 gauge malleable iron and strengthened by the grooves punched longitudinally. This splint is constantly worn and even when temporarily removed the wrist and fingers are not allowed to flex, the patient nursing the hand as shown. This is to relax the paralyzed group

of muscles which are without tone and it prevents contracture of the flexors. Where the nerve is divided, posture is an aid to surgical interference; on the other hand the nerve may have been temporarily put out of action by pressure or traction. Here posture is an aid to massage and electrical treatment and by relaxing the muscles involved prevents their overstretching and gives the best chance of recovery. We know that overstretched muscles fail to react even after nerve conduction is restored, a fact well known in poliomyelitis.

As a rule the extensors of the fingers recover before the primary wrist extensors. When the fingers can be extended from the metacarpo-phalangeal joints the long splint may be changed for a short "cock up". For median nerve involvement the long "cock up" can be reversed and placed on the dorsal instead of the palmar surface of the hand and wrist to keep the wrist and fingers flexed.

SECTION B. *Contracture.* In old standing wounds of the forearm where there has been prolonged suppuration the cases as a rule came with contractures of the flexor and pronator groups, with stiffened fingers in semi-flexion at the metacarpo-phalangeal and interphalangeal joints—flexion of the wrist and marked pronation.

After what I have said about overaction of the stronger group one asks why is there pronation? This, I take it, is the result of prolonged use of a sling with the arm pronated and the hand dangling.

In this type of case the wrist and fingers are forcibly hyperextended, under an anæsthetic if necessary, and a long "cock up" applied—the arm is forcibly supinated and kept so in extension by means of a fracture splint twisted on the bias.

These splints remain in position for about ten days or until such a time as the contractures are overcome: the fracture splint is removed, and it is found that the hands can be voluntarily supinated and that the "kick" of the contracture has disappeared. The short "cock up" is substituted for the long one and the patient is massaged and has daily stretchings; after a little while all splints are removed and the men go to the gymnasium for active exercises of the muscles involved.

I may add that in the beginning some men have such shortened flexors of the fingers (communis and sublimis) that finger splints must be applied before it is possible to extend the wrist.

Where the fingers are extended and fixed due to adhesions

the glove and bracelet is worn. This is used not only in cases where stretching or fixation is required but is more generally useful in the common type of case where there has been damage to the flexor tendons and where flexion of the fingers is impossible on account of the weakness.

Here the aim is to produce relaxation for a considerable time—generally two to three weeks. When the tendon is relaxed it undergoes shortening, the taking in of its “slack” as it is termed by Robert Jones. The result is the restoration of synergic balance and function is improved. After the fingers can be voluntarily flexed the glove is removed and massage is persisted in, at the same time progressive exercises are instituted and the same good results are obtained.

A REPORT of the first six months' work in the orthopædic department of the Woodside Red Cross General Hospital at Glasgow has been published. During this time 217 soldiers received treatment. The cases included wounds, contusions, fractures, dislocations, sprains, synovitis, arthritis, periostitis, rheumatism, myalgia, lumbago, neuritis and other nervous affections. The majority of the soldiers recovered sufficiently to return to their units. About 10 per cent. were discharged as unfit for active service, but all retained the use of their limbs.

THE Australian Government has decided to subsidize on a £ for £ basis any work undertaken by the states of the Commonwealth to prevent the spread of venereal diseases, and a sum of £15,000 has been set aside for this purpose. The states will be required to furnish evidence that the work has been efficiently planned and will be properly carried out, and to provide facilities for educating medical students in modern methods of research and clinical investigation.

SYPHILIS: ITS CAUSE AND TREATMENT

BY J. E. R. McDONAGH, F.R.C.S.

Surgeon to Out-Patients, London Lock Hospital.

AS you are all aware the first lesion in syphilis goes by the name of the primary sore. According to text-books a primary sore is recognized by three cardinal points: (1) that it is indurated; (2) that it is single; (3) that it is accompanied by hard and shotty glands in the groin. There is only one way to diagnose a primary sore, and that is by looking at it. Induration in many sores never occurs. It is always a sign of healing, therefore a late sign, consequently if we hope to diagnose syphilis earlier to-day than our forefathers did, we must not wait for induration to appear before making up our minds. In over 30 per cent. of cases of syphilis there is more than one primary lesion, and in the soft sore infection, that is to say the sore caused by Ducrey's bacillus, to find a single lesion is not at all uncommon. In 95 per cent. of cases of gonorrhoea the inguinal glands are enlarged. In 5 per cent. of cases of syphilis the inguinal glands undergo no change, and in a very great number of cases of syphilis the glands are enlarged and soft, being by no means always hard and shotty.

The patient should never be asked how soon after connexion the sore appeared, since in the majority of cases the information vouchsafed is untrustworthy and the incubation period of a soft sore of the type "*ulcus molle elevatum*"—the type of soft sore in which the lesion is often single, may be six weeks or more.

Remember that the organism of syphilis is a protozoon, an organism which is not combatted by polymorphonuclear leucocytes, therefore an organism which is neither pus-producing nor destruction-causing. A chancre is typically an erosion, not an ulcer, therefore its surface is smooth, often shiny, and either flush with the surrounding skin or raised above it. The erosion is circular, perfectly circumscribed and as it gets bigger it increases in its entirety, not in part only as is the rule with a soft sore. Owing to this unipolar spreading of a soft sore, the outline becomes irregular and as

Address delivered to the Medical Society of the C.A.M.C., Shorncliffe, May 8th, 1916. Received for publication June, 1916.

the streptobacillus is a pus-producing organism, and as pus cells have a strong proteolytic action the soft sore is an ulcer, its edges are undermined and the base is rough—somewhat like a ploughed field. A soft sore is generally surrounded by an inflammatory area, which is not the rule with a syphilitic sore. If a chancre becomes an ulcer, it usually means that it has become secondarily infected, and if gangrenous, then the secondary infection is almost invariably due to the symbiotic unevenly-coiled spirochæta and the fusiform bacillus—the same organisms which cause "Vincent's angina" and "*Balanitis erosiva et gangrenosa*," and many of the cases of pyorrhœa alveolaris as your pathologist, Captain Bowman, has demonstrated.

If a primary sore becomes secondarily infected or gangrenous it may have an influence upon the future course of the disease. If the secondary infection commences before the organisms have swept into the blood stream, the patient may never exhibit another symptom of syphilis, because a secondary infection usually kills the syphilitic organisms, in the same way as an acute local streptococcal or staphylococcal infection may kill gonococci. It is for this reason that a soft sore is so seldom followed by a syphilitic infection. It is frequently said that a soft sore may become a chancre—Well! I doubt whether I have seen two cases in my experience. The explanation is that the sore was always a syphilitic one and that the observer was wrong in his initial diagnosis. In other cases the superaddition of a secondary infection very often results in the inguinal glands not becoming enlarged and in the symptoms of the generalization stage being delayed. I have seen cases in which the generalized rash did not appear for nine, twelve, or eighteen months after the sore had vanished. In these cases the rash is often a very severe one. On the other hand a gangrenous primary sore may be the commencement of malignant syphilis. The organisms leave the sore and reach the inguinal lymphatic glands *via* the lymphatics, which can often be felt as a solid or knotted cord in the dorsum of the penis. If a section be made through this cord and examined under the microscope, a picture is seen, as if the section had been made through part of a lymphatic gland. Protozoa are attacked by resisting substances, some of which circulate in the serum and act generally, others act locally in the form of plasma cells. Plasma cells and the general resisting substance arise from lymphocytes and these in turn from endothelial cells; therefore the organisms can always be attacked locally since endothelial cells are everywhere. The reason why induration is common in

chancres and why the lymphatic cord and the inguinal glands are hard, is because the spore of the "*Leucocytozoon syphilidis*," the cause of syphilis, lives at the expense of either endothelial or connective tissue cells, and the latter form fibrous tissue. The hardness just referred to is only characteristic of early syphilitic lesions, for the reason that when the host has just become infected, his main protective capacity has not been called forward and the organisms are—vulgarly speaking—having it all their own way. When the organisms become generalized which they do by way of the lymphatics and then by the blood stream, the resisting power of the host is in full swing, numerous plasma cells become manufactured locally, the organisms are vanquished, hence the connective tissue cells are not so readily attacked, with the result that not so much fibrous tissue is formed, therefore there is no induration. If the host is sterilized at this early stage by the powerful remedies we have at hand, should some of the spores escape annihilation and develop again, the host will forget that he has had to form protective substances against these organisms before, with the result that the early lesions of the recrudescence will simulate those of a fresh infection. Most of the cases of so-called re-infection occur in the way described and are truly cases of recurrent syphilis.

The syphilitic organisms reach the skin and, for all that, every organ in the body, by the blood stream. To make a description of the cutaneous lesions clear, imagine the skin to be divided up into circular areas, each area being about the size of a shilling. Picture the shilling as a wheel. The axle is the central artery, the spokes are the branches of this artery, and the rim is the vein. You can all prove this by undressing a man in a cold room when you notice congested, or dark coloured, circles appear—a condition which is known as *livido*. These congested circles are the rims of the wheels. The organisms travel to the surface by the central artery, the moment they reach the surface they naturally act as foreign bodies, with the result that dilatation of the small vessels occurs and there is a richer blood supply to the part—phenomena which we call erythema. The name given to this erythema in syphilis is roseola. As the erythema becomes more localized and limited to the circles we call it a macule. The organisms now develop and form a papule. A papule may either retrogress, in which case a scale forms in its centre, or it may form a pustule or even an ulcer. The change a papule undergoes depends upon the amount of damage caused to the central artery. If obliterated, then the area supplied by it will degenerate and an ulcer is formed. This is the pathology

of a gumma, if the ulceration is a recurrent syphilide. As time goes on the organisms spread peripherally and radially from the central artery, with the result that when they produce fresh lesions the lesions will be in the form of circles or segments of a circle. If these few points be borne in mind, namely, that all early lesions develop in the centre, and all recurrent lesions develop either in the centre, along the radii, or in the circumference of the circle, and that the organism has many stages to go through before the ripe phases are formed, which accounts for the polymorphism of the early cutaneous eruption, none of you should have any difficulty in diagnosing a syphilitic skin lesion. You are all familiar with the rapidity with which the early syphilitic lesions vanish and the ease with which the system can be sterilized with the powerful anti-syphilitic remedies we are now employing, but an important issue arises out of this, which has generally been overlooked.

As soon as the organisms have reached the skin the meninges have become likewise involved. Now remedies applied per os, intramuscularly or intravenously, do not reach the meninges so readily or efficiently as they do the skin, and as the protective substances circulating in the serum are required also by the meninges, it will be readily understood that you may sterilize the system, without sterilizing the nervous parts of the body. If the former is sterilized and not the latter the nervous parts will lack the chief pillar of protection, with the result that the organisms in the meninges will flourish to their heart's content. This is the reason why we see so many more cases of meningeal or cerebro-spinal syphilis than we used to. In the ordinary course of events the organisms spread from the meninges into the nervous tissue proper, and produce either degenerative or non-degenerative encephalitis and myelitis. The reason why most degenerative lesions of the cord are posterior is due, I think, to the spread of the organisms along the septic posticum—anteriorly no such ligament exists. The same explanation may also be applied to degenerative encephalitis being a cortical lesion. The spores probably spread along small arterial branches in the walls of which they develop male and female phases. The adult male is the *Spirochæta pallida* and being motile it gets beyond the confines of the vessel to live at the expense of the nerve cells, which of course results in the degeneration of the latter. Owing to the poor blood supply of nerve tissue these extra-neurally situated organisms are difficult to get at, hence the reason why our treatment is, generally speaking, unavailing in cases of so-called tabes and general paralysis of the insane.

I cannot go deeper into the clinical aspects of syphilis as I have to mention other points in the short time at my disposal, which I know you are anxious to hear about. I will therefore turn my attention first to the cause of syphilis.

Most of you probably still believe that the cause of syphilis is the *Spirochæta pallida*; if so, how are you going to explain the long incubation period of syphilis, the fact that re-occurrences occur in spite of several injections of "606" when the first kills every spirochæta in the body, and how the spirochæta develops. I spent most of 1911 and 1912 in working out this problem and I am now convinced that the cause of syphilis is a spore which has a typical coccidal life history in the development of which male and female bodies are formed. The name I have given to this coccidal protozoon is the *Leucocytozoon syphilidis*, the adult male phase of which is the *Spirochæta pallida*. The acceptance of this life cycle explains all the enigmas of syphilis, none of which were dispersed by the discovery of the *Spirochæta pallida*. The different phases can be readily recognized in every syphilitic section and I have placed some under the microscope for you to see afterwards.

I will now say a few words about the Wassermann reaction.

The Wassermann reaction is a purely empirical and non-specific reaction, in spite of which it is generally maintained that a positive reaction is indicative of active syphilis. As a result of my investigations into the *modus operandi* of this reaction, I can assure you that a positive reaction only indicates that the patient has presumably had syphilis and no more.

The reaction is a physical reaction, dependent upon the increased size and number of the solid particles or protein in the serum, which form the resisting or the host's protective substance. Seeing that the call upon the resisting substance is more pronounced in protozoal diseases than in bacterial diseases, and especially in syphilis, it occurred to me that a simple test could be devised for exhibiting it. The resisting substance or the protein particles as they normally occur in the serum are in solution, owing to water their molecules contain and to salts which are attached to them. If they are deprived of both the water and salts they become precipitated, and are then visible to the naked eye. Glacial acetic acid will abstract the water and salts and the superaddition of a sulphate or nitrate will precipitate them. The best sulphates to use are the sulphates of ammonium, lanthanum or thorium, and the best nitrate is that of the last named metal. As the number of protein particles in a syphilitic serum varies from those in a normal

serum or from those in a serum from most other diseases, it will be seen that the degree of opacity or precipitation caused by the glacial acetic acid, ammonium, lanthanum or thorium sulphate, and thorium nitrate will likewise vary.

It is owing to the increased number and size of these protein particles that "606" is more efficacious in protozoal than in bacterial diseases. The arsenic does not attack the organisms directly as Ehrlich thought, it merely accelerates the normal action of the protective substance.

Speaking in simple language, so that all may understand, my view is that the protective substance destroys the parasite by robbing it of part of its oxygen. In order to do this the protective substance has both the power of oxidation and reduction. The process of oxidation is accelerated by metals; iron is the metal which fulfils this purpose in the human body. The process of reduction is accelerated by non-metals, of which sulphur is the most important one. Thence my discovery of "Ferrivine"—an iron compound, and Intramine—a sulphur compound. Ehrlich's work on chemotherapy, brilliant as it was, was purely empirical and he had no sound *à priori* reason for choosing arsenic—shown by the fact that just before he died he added copper and sodium to salvarsan.

As a matter of fact, arsenic, copper and sodium are probably three of the least desirable elements which Ehrlich could have chosen.

The toxicity of a metal is largely influenced by its atomic weight, and this is one of the reasons why arsenic is more toxic than iron, and it also explains why organic preparations of mercury are so toxic.

Mercury acts as an anti-syphilitic agent in virtue of its high atomic weight, and it is highly probable that it could be replaced by metals of a higher atomic weight still. Iodine acts as a reducing agent and therefore simulates the action of sulphur.

In all these organic preparations of metals it is always difficult to ensure that the compound will join on to the protective substance before some of the metal becomes free. Before explaining what happens should the above be the case, I must remind you that the serum is alkaline. The degree of alkalinity is fixed and it is known as the normal hydrogen ion concentration. The normal hydrogen ion concentration is nothing more nor less than a balance between the hydrogen (H) and hydroxyl (OH¹) ions in which the latter slightly prevail. In other words the serum is alkaline because it contains a slight excess of hydroxyl or negatively charged ions.

As metals are positively charged, if any are free when we inject them intravenously, they immediately combine with the hydroxyl ions and thus raise the hydrogen ion in concentration. Clinically the symptoms which follow an upset of the hydrogen ion concentration fall into two groups—(1) the cardiac, (2) the pulmonary. In the cardiac attack the patient faints, the pulse becomes weak, occasionally imperceptible, and the patient may die.

In the pulmonary attack the patient experiences a difficulty of breathing, the tongue and lips become dry and oedematous, the voice fails and the patient thinks he is going to die, but he practically always recovers. The degree of the attack is influenced by the valency and the atomic weight of the element; therefore shock is more serious when arsenic than when iron is the metal used. Many of you have doubtless experienced mild or severe attacks of shock following intravenous injections of the arsenical compounds. Owing to the readiness with which the iron becomes free when ferrivine is administered intravenously it is not at all uncommon to witness mild attacks of shock. I am striving hard at the present time to overcome this disadvantage, since ferrivine produces no toxic symptoms such as dermatitis, neuritis, etc., which are too apt to follow in the train of the arsenical compounds, and its anti-syphilitic action, if used in sufficient doses, is as good and in some cases even better than "salvarsan".

With intramuscular injections, shock does not occur, therefore the disadvantage above referred to is not met with in intramine. Intramine is non-toxic and being complementary to the metallic compounds, its use is indicated in every case of syphilis. At present intramine has the drawback of being painful, but this is a difficulty which I am now overcoming. With the facts now before us, I will end my paper by briefly describing the treatment of syphilis.

If a patient comes for treatment with a primary sore only, after treating the sore locally by excision or by applications of Ung. Hydrarg., or Lotio Nigra, he should receive two intravenous injections of a metallic compound with forty-eight to seventy-two hours interval between them. Five days later he should have an intramuscular injection of intramine and one week after the intramine another intravenous injection of a metallic compound should be administered. The combination of Ferrivine and Intramine in the primary stage acts in a most wonderful way in getting rid of induration, the hard lymphangitis and lymphadenitis. Neither "salvarsan" nor mercury have much effect upon induration. I feel it is imperative to relieve the sore of its hardness at the earliest

possible moment, since induration prevents the drugs from reaching the site in sufficient quantity, with the result that when the host is sterilized, he may get an auto-re-infection. Note how commonly the site of a chancre breaks down again, and the frequency with which recurrent papules and gummata occur thereon.

Immediately after the course of treatment just mentioned has been given mercury and iodides should be prescribed for a year. Mercury can be given internally, when its administration should be continuous or better in the form of intramuscular injections. I am accustomed to inject grey oil intramuscularly once a week for eight weeks, then to order iodides internally for three weeks and then rest from the treatment for five weeks. In a case of primary syphilis three courses would thus be administered in the year.

The following is the prescription of the "Grey Oil" I use:

R Hydrarg. 20 parts.

Anhydrous lanoline. 30 "

Chlorbutol. 2 "

all a.a. by weight.

Liq. paraffin. to 100 parts by measure.

5 mins. contains gr. i. of mercury. Inject 5 to 15 mins. weekly.

The bulk of this grey oil is small, it is liquid at room temperature, and as much as 30 grs. of mercury can be given at a dose, and it is painless.

If the patient has entered the generalisation stage I prescribe two intravenous injections of a metallic compound both before and after one or two intramuscular injections of "intramine" and six courses of the combined mercury and iodide treatment, or mercury internally continuously for two years.

For a case of ordinary recurrent syphilis I first of all prescribe one or two intramuscular injections of "intramine", then one or two intravenous injections of a metallic compound, allowing a week to intervene between each injection. This is followed up with mercury and iodides for six months.

If a patient has had syphilis and has been well treated, and he comes up for advice because he believes that a blood test will tell him whether he is cured or not, I make a thorough clinical examination and if I find no symptoms, or signs of active syphilis, I neither test his blood nor prescribe treatment, not even if his blood has been already tested and has given a positive reaction. A positive reaction in latent syphilis is often a sign of protection, because I

have seen the onset of a degenerative central nervous lesion accelerated by the breaking down of this protective pillar as I have called it earlier in my paper. I feel very strongly that all cases of latent syphilis should be left alone and that all cases of recurrent syphilis should be treated symptomatically only. A case of pure meningeal syphilis should be treated as a case of recurrent syphilis, and it is a good plan to give an intraspinal injection of the prepared serum drawn off on the third day after each intramuscular and intravenous injection. In a case of active degenerative myelitis, the question as to whether the case is active or not can soon be proved by an examination of the cerebro-spinal fluid. So many intramuscular injections of "intramine" and intravenous injections of "ferrivine" plus an intraspinal injection of the prepared serum after each, should be administered until the cerebro-spinal fluid is approximately normal. The new arsenical preparations, such as "galyl," "kharsivan," etc., should never be employed for the preparation of serum for intraspinal use, as they are too toxic. A case of active degenerative encephalitis should be treated by "intramine", and a metallic compound alternately, but I do not think there is any advantage in injecting serum intraspinally. I have had some extraordinary results by combining "intramine" and a metallic compound in the treatment of so-called G.P.I.

I hope I have not kept you too long listening to this paper, and I trust you will now enter freely into a discussion upon it. When the discussion is over I shall be pleased to show you the various specimens, plates, etc., I have brought with me.

Case Reports

APPENDICO-VESICAL FISTULA

BY M. LAUTERMAN, M.D.

Montreal

PATIENT a male, aged twenty-six, chauffeur, came under observation September 17th, 1911, complaining of urethral discharge, painful, frequent and difficult micturition.

Illness began three weeks ago with dull persistent pain in suprapubic area, radiating towards rectum and into perineum, accompanied by frequent desire to micturate (about every hour when moving about, every two to four hours when sitting quiet or lying down, with once during the night). During the last week has not experienced relief after voiding, having developed what he describes as a burning, aching feeling in bladder and urethra; this, however, passes off in from fifteen to twenty minutes. Patient's habits may be said to be good, though he smokes ten to twenty cigarettes a day, uses beer moderately, sometimes none for weeks, never exceeds two or three bottles of lager on any one day; no gonorrhoea or lues. Lived in the United States until five years ago; always enjoyed good health, trained carefully in bicycle riding; measles at seven, no other illness. During last three years has suffered from constipation, due to sedentary occupation, sometimes three or four days without bowel movement. Castor oil or pil. cath. co. have been taken for relief. July 4th, following an unusually obstinate attack of constipation obliged to take to bed for ten days, during which time he suffered from severe abdominal pain, vomiting and fever. Physician diagnosed at different times, gall stones, renal colic, gastric ulcer. Morphine was the only thing which gave relief and enemata and hot fomentations completed treatment. Three weeks from time of onset of illness returned to work though not well, right side felt lame. During first week of September after a long drive over rough roads, bladder not being emptied for five hours, on commencing the act experienced great pain in right side of abdomen,

Received for publication August 1st, 1916.

felt faint for a few minutes, voided about a pint of cloudy urine, mixed with blood and some slimy material. An hour later again had desire to urinate but this time passed a considerable quantity of gas having a faecal odour. Consulted his physician who said he probably had taken cold in his bladder and would be all right in a few days. The patient not being satisfied consulted a druggist. At this period he was voiding six to ten times in the twenty-four hours, from two to four ounces each time of cloudy offensive urine, the last part of which was always thick and contained a mucilaginous substance which hung from the meatus until forcibly expressed; on several occasions particles of brownish, or greenish-brown material, irregular in form, size and consistency were intimately mixed with the discharge. Air now bubbled from urethra each time he voided urine and each time bowels moved. During last week or ten days he suffered from diarrhoea, especially in the morning. This continued until he came under my notice September 17th, when on returning from Plattsburg at 6 p.m., on leaving his car to urinate he felt a sudden sharp pain in the perineum along urethra to glans penis. Felt desire to strain which caused urine to dribble slowly from urethra, but pain so severe that some friends had to come to his assistance. He was brought to my office at about 7 p.m., was pale, cold, bathed in perspiration with small rapid pulse, presenting all signs of a man suffering from severe shock. The ready-made diagnosis of stricture offered by the patient, which had been furnished by the druggist who had prescribed a mixture for its relief, as well as the history of pain radiating down the side, suggested a rectal examination. The prostate was slightly but uniformly enlarged, sensitive, seminal vesicles apparently normal, bladder fluctuating just above and behind prostate. In front of prostate in the membranous urethra, between layers of the triangular ligament, where one looks for an infected bulbo-urethral or Cowper's gland, one felt a small lump about the size of a large pea, sensitive on pressure—here one evidently had the stricture, or as I thought, an impacted calculus. I washed the anterior urethra with warm boracic by means of a hand syringe and tried to pass a No. 20 F soft rubber Wishart catheter which entered easily as far as the obstruction, about twenty cm., or eight inches, but gentle pressure failed to pass the obstruction. A Hugh Young post-urethral tube was then inserted as far as the obstruction, the obturator being removed, it was possible to examine the site as well as the cause of the obstruction. Through the urethroscope there appeared a white body with a rounded edge which caused one to think of a

calculus. It could be moved backwards by pressing the tube against it. It was seized with forceps and drawn into lumen of tube and proved to be a grain of indian corn ingested seven hours previously. The No. 20 F catheter now passed easily and twelve ounces of cloudy urine with fæcal matter were removed, bladder washed with warm boracic solution urotropin, rest in bed, fluid diet prescribed.

September 18th: Cystoscopy, Brown Buerger indirect, with examining lens passed easily eight ounces oxycyanide of mercury solution, 1-10,000 in bladder. Mucous membrane thickened, dull and injected, several patches having a deep brownish red colour with particles of fæcal matter adherent. Both ureteral openings appeared normal. Two inches above right ureteral opening was an irregular-shaped slit with ragged edges which allowed the tip of the cystoscope to enter and its removal was followed by flow of fæcal matter which clouded the field.

Operation under ether anæsthesia. Ureter and fistula previously catheterized. Abdomen opened through right rectus. Adhesions of cæcum to peritoneum and bladder encountered and separated; tip of appendix free and pointing to patient's left side, body adherent to right side of posterior wall of bladder for about two inches. The catheter in side could be felt passing into cæcum. Appendix carefully dissected free from cæcum, tied off and cut through with cautery knife; stump inverted with a purse-string suture. Appendix now freed from adhesions to about one-quarter inch from edge of fistulous opening, peritoneal covering cut through all the way around and pedicle thus formed tied off with catgut, appendix cut through with scissors. Outer wall of bladder was now sutured over the stump and the cut edges of the peritoneum in turn sutured over the whole. Catheter left in forty-eight hours. Left hospital eleventh day after operation.

Cystoscoped four weeks after operation could see spot where opening had been, bladder mucous membrane healthy, still had colon infection of urine, treated with lactic acid bacilli and irrigation of alum acetate solution.

PILCHER, "Ileo-vesical and Appendico-vesical Fistula complicated by Stone in Bladder," *Trans. Americ. Urological Association*, 1912, vi.

BOEHM and DEAN, "Sigmoido-vesical Fistula and Diverticulitis," *Amer. Jour. of Urology*, 1912, viii, page 474.

CUNNINGHAM, J. H., "Recto-vesical and Entero-vesical Fistulæ," *Trans. Amer. Urological Association*, 1915, ix.

CASE REPORTS FROM THE ARMY MEDICAL SERVICES

I.—BILHARZIAS

CASE PRESENTED BY CAPTAIN A. ROCHE ROBERTSON, C.A.M.C.

Granville Canadian Special Hospital, Ramsgate

PRIVATE J. A. J., aged twenty-eight. Complaints, on admission: nervousness and passing of blood in urine; pains in small of back. Personal history: military musician since age of fourteen, when he joined the Third Manchester Regiment. After four months at Aldershot he went to St. Helena, remaining there six months. Then he went to South Africa for four years, being stationed at Middleburg, Cape Colony, for three years, and afterwards at Middleberg, Transvaal. Came home December, (1910), and was absorbed into ——— Regiment, and sent to Guernsey for a month. He was then transferred to Royal Canadian Regiment at Halifax, remaining there until August, 1914, when he proceeded to ———, remaining there one year. Returned to ——— and then came on to ———, September, 1915. Reached ——— November 1st, then to La Clytte within sound of guns. Got into trenches as stretcher bearer at ——— when he at once began to feel nervous because of gun-fire. Thought every shell was meant for him; imagination vivid; tired quickly. After sixteen days his fellows told him to go back, but he stuck out until they went into billets again. Felt very nervous that night, and in the morning when our first guns began he collapsed in sheer weakness and trembling, the right side seemingly much weaker than the left. Was sent back to field ambulance at ——— and after seven days returned. But the first crash of guns made him worse than ever, though he tried hard to stick. He couldn't stand, and his commanding officer sent him down to ——— hospital.

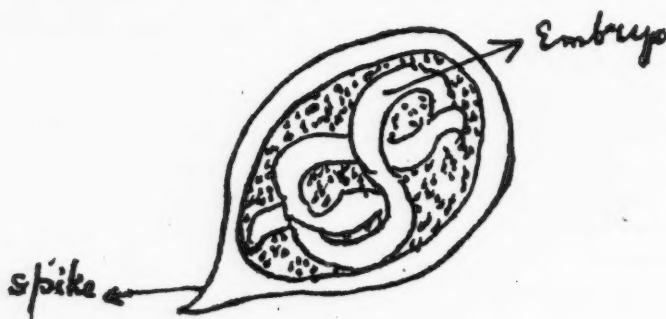
His nervousness really began two years ago when he lost his wife in child-bed. He grieved sorely over this, and in Bermuda was exceedingly nervous and weak; so much so that his comrades noticed it. When in Africa he was in the Karroo desert, and spent much time hunting. He would drink water anywhere. Some of

Cases presented at the Ramsgate meeting of the Medical Society of the Canadian Army Medical Corps, April 24th, 1916.

his pals there had "red water" and he also noticed that he had it there for the first time. Now he finds that there is more blood in the urine in the latter part of the afternoon. He has very little urgency or frequency. The blood generally comes towards the end of micturition. He has pains of a dull character in the lumbar region, but none in the perineum.

Present condition: heart lungs, reflexes, abdomen, etc., are normal under examination.

Urine, slightly turbid and smoky, acid, no sugar, heavy ring of albumin. Microscopically, there is much blood but no pus or casts. There are numerous characteristic ova of *Schistosomum hæmatobium* (Bilharzia) with spike on the end.



II.—SACROLIZATION OF LUMBAR VERTEBRA

CASE PRESENTED BY CAPTAIN D. A. CLARK, C.A.M.C.

PRIVATE V. H., Diagnosis: sacrolization of fifth lumbar vertebra with resultant nervous and static manifestation. Complaint: grinding pains in left hip on walking or sitting, with shooting pains in left calf and gradually increasing lameness. Duration: one year.

Present condition: complains of a sharp grinding pain in left hip and shooting pains in left calf radiating to foot. The pains are only present when carrying weight of body, as in sitting or walking. No pain when lying down. Any attempt to assume an erect position is accompanied by severe pains.

X-ray demonstrated sacrolization of fifth lumbar vertebra.

III.—CASE PRESENTED BY CAPTAIN COLLINS, C.A.M.C.

SERGEANT G. Loss of function of right upper arm and shoulder. Paralysis of deltoid infra and suprascapularis muscles of five months' duration, little if any improvement in condition in that time.

IV.—PYLORIC ULCER

CASE PRESENTED BY CAPTAIN MACLEOD, A.G.

TROOPER P., aged forty-six, married. Previous history: two years ago while oiling a rip-saw, was struck by a piece of wood in right inguinal region, inflicting a superficial wound, which evidently became septic, as patient was confined to bed for six weeks. Parts were swollen and tender. Patient had rise of temperature. Since then he has had pain in right lower quadrant of abdomen, has been constipated and often passed blood in stool. Arrived in England in June, 1915, and was exposed to a great deal of cold damp weather. Reported ill on November 20th, complaining of pain in both shoulders and elbow joints. Admitted to hospital and while there developed gastric trouble. Immediately after eating he would suffer from sharp, stabbing, burning pains which seemed to go through to back. Always relieved by vomiting. Vomited once a good deal of dark brownish blood and also passed some dark tarry stools. Condition became worse, could not retain anything in his stomach, and suffered from pain in pit of stomach. Came to the Granville Canadian Special Hospital on January 7th, 1916, complaining of general pains all over abdomen, but especially marked on palpation over pyloric region. Tongue was heavily coated, large and fissured. Roof of mouth was covered with small red pustular sores. Teeth fairly good, but marked pyorrhœa was noted. Heart, lungs and kidneys normal, no enlargement of liver or spleen. Patient was of a highly nervous temperament, slept badly, and could not retain anything in his stomach. X-ray report after a bismuth meal: stomach empty in one and a half hours; cæcum in three hours; violent peristalsis, probably due to juxta-pyloric ulcer. Patient was put to bed and rectal feeding instituted for four days. Bovril, one ounce; saline, three ounces, every three hours; morphine sulphate, one-quarter grain, atropine sulphate, 1-150th grain.

Editorial

THE RECENT EPIDEMIC OF POLIOMYELITIS

DURING the past three months there has occurred in New York City and in certain limited areas throughout that State and the neighbouring States of Connecticut, Rhode Island, New Hampshire and New Jersey, the most serious epidemic of poliomyelitis of which we have any knowledge. This disease since the beginning of the present century appears to have gradually increased in the extent and severity of its ravages, until its prevalence in so many States to the south of us must be regarded as one of the most outstanding facts with which to-day our profession has to deal.

Epidemic poliomyelitis is a comparatively new disease. Scarcely half a century has elapsed since Heine published the first known description of the disease under the name of spinal infantile paralysis. Sporadic cases have doubtless occurred in the past. Sir Walter Scott is said to have suffered from it in early infancy. Sir William Osler suggests that this disease was the cause of Mephibosheth's lameness. The first obscurely recognized cases of an epidemic nature were reported by Colmer, of Louisiana, in 1843, who when describing a case of infantile hemiplegia, stated that other similar cases had occurred in the village. Not till 1881, however, have we any distinct record of an epidemic of this disease. In that year Bergenholtz reported eighteen cases in Northern Sweden, and in 1887 Medin described forty-three cases in Stockholm. Since then outbreaks have occurred frequently both in Europe and in America, and until the present have gradually increased in the number of children attacked, and, speaking generally, in the severity of the symptoms.

Thus far the epidemics both in Europe and America have been confined in great measure to the northern part of the temperate zone; and Southern Europe, and the Southern States of America appear to have escaped almost completely. A limited epidemic, however, is reported to have occurred in Cuba.

In Canada slight epidemics have occurred both in Nova Scotia and Ontario, but up to the present no extensive epidemic has developed, but sporadic cases have not been infrequent. It is evident, however, that unless great care is exercised this dire disease with its crippling results may develop suddenly in epidemic form. Careful investigation shows that the disease spreads along the ordinary routes of travel. Flexner calls attention to the fact that the epidemics of the States appear to have developed most severely in the seaboard cities at which immigrants land, and in the Western States where the largest number of Scandinavian immigrants settle. The virus of this disease, to a greater degree than is the case with other infectious diseases, appears to be subject to variations in which its virulence becomes increased or lessened, and at the same time also its powers of transmission, but the exact conditions under which these mutations of virulence occur have not yet been accurately determined. While it was seldom that in the sporadic cases of the past, physicians noted any indications of a conveyance of the infection from one child to others in the same family, the possibility of such transmission must now be regarded as definitely proven. Not only may the disease germs be conveyed from the sick to the well, but undoubtedly may be carried by those who have come in contact with the sick and thus infect others at a distance. In Norway Geirswold was able to trace transmission of the disease from one house to another and from the original village to others in the neighbourhood, by the passage of individuals who were acting unconsciously as carriers; and Shidler, of Nebraska, records the details of a case in which a woman with her child went to

the wedding of her sister in whose house a younger sister was ill with this disease. Nine days after the mother returned home, another of her children, who had not been away, came down with the disease, and in an adjoining house the children of a friend all developed the disease. There are many such instances recorded. In recent epidemics many instances have been observed where the disease has spread not only to other members of the same family, but has been conveyed by those in attendance to families at a distance.

It becomes imperative, therefore, that in such a disease the physician should insist on the strictest quarantine measures in the affected household, and exercise most careful precautions in his own person while attending the sick.

An important fact which has doubtless contributed greatly to the spread of the disease in the past is the number of so called "abortive" cases in which the disease is not recognized, and yet in which the organisms are present which may transmit the disease to others in a virulent form. In these atypical forms in which paralysis does not occur, and recovery from transient initial symptoms leaves the motor centres uninjured, diagnosis is always very difficult, especially as at the present all laboratory methods for the identification of the organism are extremely difficult and for the ordinary bacteriologist impossible. It must therefore be insisted that in every case in which any possibility of contagion may have occurred, our suspicions should be aroused by the following group of symptoms: headache, vomiting, moderate or slight pyrexia, pains in lower limbs, especially marked at night, or sometimes more general hyperaesthesia, stiffness at the muscles of the neck, and generally diminished reflexes; sometimes early in the attack these may be increased. Associated with these symptoms there is a well-marked tendency to perspiration. In a few other instances the symptoms are more acute and severe and the disease has been regarded as cerebro-spinal fever. In every case in which the symptoms are suspicious but the diagnosis uncertain lumbar puncture should be performed early. In

poliomyelitis there is usually an increase in the lymphocytes and a very large percentage of polymorphonuclears which are very shortly replaced by mononuclears. In three or four days we have a pure lympho-cytosis. The albumin and globulin content of this fluid is increased, but less than in tuberculous meningitis. Draper, speaking at a recent symposium on the recent epidemic in New York, says: "The diagnosis is suggested by gastro-intestinal, respiratory, and febrile symptoms. Where we find these a search should be made for transient weakness and mild degrees of paralysis and for local muscle tenderness. One point of value is the anterior spinal flexion sign. It is very striking that before paralysis sets in the spinal flexion sign is definitely present, and is probably responsible for the stiff neck and Kernig's phenomenon. The sign is elicited by flexing the trunk forward, doubling the child anteriorly, so that head and hips approach. There is no question that these atypical cases exist, and are a frequent source of contagion."

To prevent contagion spreading, it may in many cases be possible, and certainly it will always be wise, to remove healthy children to another house or neighbourhood. All discharges from the nose, mouth and intestines of the sick child should be carefully disinfected. It is desirable that all attendants should wear uniforms and rubber gloves. The cleansing several times a day of the naso-pharynx by some bland antiseptic solution is essential, for it has been definitely proven that the microorganisms are eliminated by that membrane. All attendants should use similar precautions, and follow the cleansing with an oily spray, or the insufflation of fine pure kaolin powder, which has been strongly recommended by Hektoen and Rappaport as one of our best means of removing bacteria from nose and throat. In all our treatment, until some definitely specific treatment is discovered, rest should be a predominant idea, and our efforts should be directed to secure rest for muscles, nervous centres, and in older children for the mind. Good nursing is all important.

Hexamethylenamine is recommended by Flexner in full doses in the early stage. Its action, however, is only slight. Serum therapy may be of value if the serum can be obtained from persons who have passed through an attack within the previous four years. It should be injected daily for eight days after an equal amount of cerebro-spinal fluid has been withdrawn. In all cases where paralysis of the larger muscles remains expert orthopædic advice is indispensable and should be secured early.

Immunization is not yet practicable. Flexner tells us that no effective method free from danger has yet been found, but there is little doubt that within a short period some method will be discovered which will enable us more efficiently to combat this dire disease.

From the *American Bulletin of the Health Department of the City of New York* for July 8th, 1916, we clip the following:

"Poliomyelitis is regarded by the laity and by physicians alike as an acute disease, characterized by the early appearance of a more or less extensive flaccid paralysis. It has, however, widely varied manifestations. Wickman has classified the disease under eight types: 1, spinal poliomyelitis; 2, Landry's; 3, bulbar or pontine; 4, encephalitic; 5, ataxic; 6, polyneuritic; 7, meningitis; 8, abortive. The simpler classification of Peabody, Draper and Dochez, from the Rockefeller Institute, recognizes three types: 1, abortive cases without paralysis; 2, cerebral cases with spastic paralysis; 3, bulbo-spinal cases. Wickman considers that from 25 to 56 per cent. of the cases are abortive. These cases are likely to escape recognition and are, therefore, most important in their relation to public health, from their likelihood of spreading infection.

"The initial symptoms are very like those of the paralytic cases: fever, hyperæsthesia, drowsiness, headache, vomiting, varying degrees of stiffness of the neck, Kernig, and a positive Macewen. Seen during the first twenty-four or thirty-six hours, the diagnosis from epidemic meningitis can be made

in no way except by lumbar puncture, and even this is sometimes confusing without microscopic examination, as the fluid at this stage may be slightly turbid. The diagnosis from other acute infections of childhood depends to some extent on the greater degree of hyperæsthesia and also on the examination of the spinal fluid, which in meningism from other diseases is normal. Recovery may take place in a few days. No diagnosis may be made unless expert consultation is obtained early. On the other hand, the symptoms may run on for two or three weeks. There often develop loss, diminution or inequality of the knee jerks and loss of the pupillary reflexes. At this stage the differential diagnosis from tubercular meningitis is very difficult, and lumbar puncture, while helpful, is by no means positive, the fluids in the two conditions being often very similar. In many cases there is a varying degree of weakness, often transient, and slight facial palsies are frequent. These abortive cases very evidently constitute the most dangerous foci for the dissemination of the disease.

"A very unusual manifestation of poliomyelitis is blindness. The meningitis division of the Department of Health has seen two such cases, one being in the present epidemic. In the first case, the vision was restored at the end of about three months. The second was a quite recent case and the blindness still persists. Cases with the bulbar type of paralysis, with difficulty in speaking and swallowing, are not uncommon in this epidemic and have, in some instances, been diagnosed as croup. In a fairly large number of cases, a rapidly ascending type of paralysis has been present, involving the muscles of respiration and ending with death. Some of these, when seen late, after pulmonary œdema has developed, have been diagnosed as bronchopneumonia. The fatalities of the present epidemic have been largely due to these two types of the disease.

"The spinal fluid in poliomyelitis is usually clear and increased in amount. The albumin and globulin are increased in varying degrees, and there is usually a good reduction of

Fehling's. The cellular increase ranges from slightly above normal to over 900 cells per cubic centimetre. Early in the disease the cells may be 50 per cent. or more polymorphonuclears. Later there are usually 90 per cent. or more mononuclears. There are frequently large mononuclear cells that seem somewhat characteristic of these fluids.

"Two rather unusual varieties of fluid are sometimes seen, probably the result of an extremely pronounced hæmorrhagic condition. In one type the blood is evidently fresh and is uniformly admixed with the spinal fluid, thereby differentiating it from blood obtained from the accidental puncture of a vein. Evidence of an older hæmorrhage occurs in the second type, which presents a yellow fluid, coagulating spontaneously."

THE TUBERCULOUS SOLDIER

THE tuberculosis problem in connexion with the soldiers of the Canadian Expeditionary Force has been of late carefully considered by the Military Hospitals Commission. On September 15th, a meeting of experts, consisting of Dr. Baldwin of Saranac Lake, Drs. Parfitt and Elliott of Muskoka, and Dr. Byers of Ste. Agathe, met some of the Commissioners. Dr. F. J. Shepherd, of Montreal, was in the chair and Lieutenant-Colonel A. Thomson, medical superintendent of all the hospitals under the Commission, was also present. It was reported that at present there are some three hundred and ninety-seven patients under treatment in the various sanatoria for tuberculosis throughout the country. Nearly sixty per cent. of these soldiers have never been overseas. Many of these cases should never have enlisted but having been accepted the country must provide for them. It is anticipated that some thirty patients monthly may be expected from overseas and these with the cases which develop here in the various camps, it is estimated, by the spring will amount to over four hundred cases. These will have to

be arranged for. The experts advised making temporary arrangements immediately with existing sanatoria for the treatment of these cases for the coming winter and indicated methods by which inexpensive temporary buildings could be provided. They also advised the purchase of property in localities suitable for the treatment of tuberculosis and erecting thereon permanent buildings of the most modern type. Already the West is provided for to a great extent by securing the use of the sanitarium at Frank, Crowsnest Pass, Alberta. This commodious building will hold one hundred and twenty patients and, with the already existing sanatoria at Tranquille, Kamloops, British Columbia, Ninette, Manitoba, and Calgary, will afford sufficient accommodation for the present. Quebec will be provided for at Lake Edward and Ste. Agathe. The Lower Provinces will be accommodated partly in Quebec and also at the sanatoria already existing at St. Johns, New Brunswick, Kentville, Nova Scotia, and Charlottetown, Prince Edward Island. In connexion with the sanatoria workshops and recreation rooms will be provided, and occupation suitable to the patients' condition will be insisted upon. The great difficulty is keeping the patients under treatment when they are progressing favourably as after six months they can demand their discharge and go upon a pension. The discipline will be maintained by returned combatant officers who will take military charge of the men.

A PERMANENT PENSIONS BOARD

A PERMANENT Board of Pension Commissioners has been appointed by the Government under the chairmanship of Mr. J. K. L. Ross, of Montreal. The other members of the Board are Colonel R. H. Labatt and Major J. L. Todd, associate professor of parasitology in McGill University. Major Todd, who was a member of the Pensions and Claims Board in England, has made a careful study of the pensions

systems of Great Britain and France and has a wide knowledge of this important question. The members are to hold office for ten years, the presumable object of this arrangement being the elimination of any possible political influence in the administration of pensions according to the scale prepared.

Pensions will be awarded in direct proportion to the disability incurred and disabled men who have been discharged from the army will be divided into the following six classes:

Class I.—Total disability—100 per cent.

Class II.—Disability 80 per cent. and less than 100 per cent., pension 80 per cent. of Class I.

Class III.—Disability 60 per cent. and less than 80 per cent., pension 60 per cent. of Class I.

Class IV.—Disability 40 per cent. and less than 60 per cent., pension 40 per cent. of Class I.

Class V.—Disability 20 per cent. and less than 40 per cent., pension 20 per cent. of Class I.

Class VI.—Disability under 20 per cent., a gratuity not exceeding \$100.

The following is the scale of pensions for total disability:

	Yearly
Rank and File	\$480
Squad, Battery or Company Sergeant-Major; Squad, Battery or Company Quartermaster Sergeant; Colour Sergeant; Staff Sergeant ..	510
Regimental Sergeant-Major not Warrant Officer; Master Gunner not Warrant Officer; Regimental Quartermaster Sergeant.	620
Warrant Officer	680
Lieutenant	720
Captain	1,000

To those up to and including the rank of lieutenant, who are totally disabled and in addition are totally helpless so far as attendance to their physical wants is concerned, a further allowance may be made of an amount not exceeding

\$250 a year, but such special allowance shall be subject to annual review.

Those, up to and including the rank of lieutenant, who are disabled and are entitled to a pension in the 1st, 2nd or 3rd class, shall be paid in addition to the personal pension, a special allowance of \$6 a month for each child; of the rank of captain \$7 a month for each child.

If a member of the forces has been killed his widow is entitled to 80 per cent. of the total disability until she remarries, when her pension will cease, but she will receive one year's gratuity. She is also entitled to draw the allowances for children. These allowances for children are up to the age of sixteen for a boy and the age of seventeen for a girl. If a child is suffering from a mental or physical infirmity then it is left to the discretion of the Commissioners whether the allowance shall be continued longer or not.

If a widower is killed, then each child is entitled to receive \$12 per month.

A widowed mother, stepmother or grandmother wholly dependent upon a member of the forces who has been killed, is entitled to 60 per cent. of the total pension. This also applies to a father who was wholly dependent on a son who has been killed in the service.

The Board of Pension Commissioners also have authority to make provision for the vocational training of returned soldiers and for the supply, from time to time, of artificial limbs and appliances.

THE CLAYTON CONVALESCENT HOME

THE opening of the Clayton Convalescent Home at Halifax on September 21st, is of particular interest as it is the first institution to be established in Canada for the express purpose of the educational, vocational, and physical training of disabled soldiers. Such training is now in progress in other institutions in this country, for instance in the Con-

valescent Hospital established at the Grey Nunnery, Montreal, and other centres, but the Clayton Convalescent Home is the first Canadian hospital devoted exclusively to vocational training.

It has been presented to the Military Hospitals Commission by its founder, Mr. W. J. Clayton, of Halifax. The furnishing and equipment of the workshop has been carried out under the able direction of Professor Sexton, of the Technical College, Halifax, and provision has already been made for instruction in cobbling, tailoring, and automobile driving. Arrangements will be made later for instruction in other trades.

The first patients to be received into this hospital were Jamaican soldiers, seventeen in number, whose feet were frozen last winter on board the transport that was conveying them to England. These men have been undergoing treatment in the Halifax Military Hospital and, unfortunately, it has been necessary in most of these cases to amputate one or both feet. The men will now be furnished with artificial limbs and will be given instruction in some trade which, upon their reëntry into civil life, will enable them to be self-supporting.

A CANADIAN society composed of nurses and doctors has been formed in Paris and meets once a month for the discussion of scientific and professional questions. The first meeting took place on September 4th in the great theatre of the Sorbonne. Among those present were most of the professors of the Paris Faculty of Medicine. Professor Landouzy, the dean, who presided, welcomed the Canadians who had come to defend the cause of justice "as much by filial piety towards France as by loyalty to the United Kingdom." Colonel de Martigny in replying, said "Our brothers in khaki fight side by side with yours, happy, if need be, to sleep their last sleep in the sweet land of France." Professor Albee of New York delivered an address on bone grafts.

FROM the statistics compiled by Mr. J. N. MacLean, chief of the license inspectors in the province of Manitoba, it would appear that the vigorous enforcement of the Temperance Act is producing splendid results. It is too early yet to speak with any degree of certainty but up to the present time the results have been most satisfactory. The amount of drunkenness in the province has been reduced by 80 per cent. as compared with the three months immediately preceding the enforcement of the Act. In Brandon the convictions for drunkenness during the months of March, April and May of this year numbered 133; those during June, July and August only 19. Moreover the convictions for crime in the province have fallen from 813 during March, April and May to 161 during June, July and August.

AN analysis of the causes of invalidity in respect of claims under the Australian Invalid and Old Age Pensions Act has been made by Dr. Cumpston, Director of Quarantine in the Commonwealth. The Act came into force on November 19th, 1910, and up to August 27th, 1915, 27,484 pensions were granted to persons who had become permanently incapacitated in Australia through disease or accident not self-induced and not brought about in order to obtain the pension. As might be expected, the greatest number of pensions—35·64 per cent. of the total—were granted to persons between the ages of fifty and sixty; between forty and fifty the percentage was 18·26, and between the ages of sixteen and twenty it was 5·57. The causes of invalidity included rheumatism, including probably all joint affections but not valvular disease of the heart, in 2,714 cases; phthisis, including miner's phthisis in 2,532 cases of which 42 per cent. were under forty years of age and 21·1 per cent. under thirty; syphilis, disorders of the circulatory system, hemiplegia, accident, senility, defective vision, congenital imbecility, epilepsy, degeneration of the spinal cord, tubercular bones and joints, cancer and varicose

veins. Dr. Cumpston assumes that all cases entered as degeneration of the spinal cord, insanity, epilepsy, congenital imbecility, and congenital malformation, are dependent to some extent upon syphilis and places the number of cases in which invalidity may be attributed to that disease at 3,775. Since 6,519 of the cases recorded were persons under the age of forty, a special investigation has been undertaken to determine the causes of permanent incapacity in persons under forty years of age and the best means of its prevention. Dr. Cumpston attributes the majority of the cases to tuberculosis, syphilis, or gonorrhœa. He is of opinion that a large number of pensions are granted to persons who are suffering from preventable diseases such as syphilis and tuberculosis, or from affections that could have been prevented by early treatment, and he recommends a comprehensive scheme of national insurance as the most effective means of remedying the situation.

AN abstract of the Report of the Royal Commission on Venereal Diseases was published in the April number of this JOURNAL. The recommendations of the Commission, in so far as the provision for diagnosis and treatment is concerned, have been put into operation by the Local Government Board, London, by an order dated July 12th, last. The regulations of the order provide that the council of every county and county borough (1) shall, subject to the approval of the Board, make arrangement for enabling any medical practitioner practising in the area of the council to obtain, at the cost of the council, a scientific report on any material which the practitioner may submit from a patient suspected to be suffering from venereal disease; and (2) shall prepare and submit to the Board a scheme (a) for the treatment at and in hospitals or other institutions of persons suffering from venereal disease, and (b) for supplying medical practitioners with salvarsan or its substitutes for the treatment and pre-

vention of venereal disease. It is not the intention that special laboratories shall be established for the diagnosis of venereal disease, but that the facilities existing in universities and large hospitals shall be utilized and made available for the whole population of the area in which they are situated, specimens sent by any doctor practising in that area to be examined without cost to the patient or doctor. If the requisite facilities are not to be found within the area of the council, an institution outside that area may be chosen, provided it is accessible from the more densely populated parts of the area. The treatment provided is to be available to all comers, irrespective of the place of residence or the means of the patient and no distinction will be made between these patients and those undergoing treatment for other diseases. Payment for services rendered will be made to the hospital authorities by the council of the county and will be in the form of a lump sum annually, subject to revision in the light of experience. As recommended by the Royal Commission, 75 per cent. of the cost of carrying out the scheme will be met from Imperial funds, and the balance will be paid by the municipality.

It will be seen that the general idea of the scheme is to provide the best means of diagnosis and treatment for all persons suffering from venereal disease. The work of treatment is to be closely associated with the general practitioner, to whom all laboratory facilities are to be free. The hospital clinics are to be open to medical students and doctors and it is hoped that they may constitute a means of disseminating the latest knowledge concerning diagnosis and treatment among all members of the profession.

Miscellany

Book Reviews

MANUAL OF VITAL FUNCTION TESTING METHODS. By WILFRED M. BARTON, M.D., associate professor of medicine, Medical Department Georgetown University. 255 pages. Boston: Richard G. Badger. Toronto: The Copp Clark Co., Ltd., 1916. Price \$1.50.

This small volume represents a careful effort to collect in one volume all the necessary data for carrying out the various functional tests to determine the efficient action of the more important organs in the body, namely, the liver, kidneys, heart, pancreas and ductless glands. It is a collection that must prove of great service to every practitioner, especially to those who are interested in this very practical and ever-developing field of clinical pathology. A careful examination of the volume has shown us that the writer's work has been thoroughly and carefully performed. It is a volume to be recommended.

THE TREATMENT OF ACUTE INFECTIOUS DISEASES. By FRANK SHERMAN MEARA, M.D., PH.D., professor of therapeutics in the Cornell University Medical College in New York City. New York: The Macmillan Company.

In this very practical volume Dr. Meara writes not only as a careful observer and diagnostician, but as an able therapist. Each chapter deals with an individual disease in a thoroughly practical manner. The volume is one which we can strongly recommend both to physicians and students. The first two chapters deal with the general principles of treatment and with diet in acute and infectious disease. The facts stated are well worth the earnest consideration of every physician. The chapters on the special diseases are in our opinion very carefully written. We have read them all and thoroughly enjoyed them, and shall consider the book a valuable addition to our library.

A HANDBOOK OF INFANT FEEDING. By LAWRENCE T. ROYSTER, M.D., attending physician Bonney Home for Girls and Foundling Ward of the Norfolk Society for the Prevention of Cruelty to Children. Illustrated, 120 pages. St. Louis: C. V. Mosby Company, 1916. Price \$1.25.

This is a small volume but it covers the ground well. It is written in a clear and interesting manner and can be recommended to students and to every physician who desires to grasp quickly the essentials of infant feeding. Dr. Lovett Morse has written the chapter on the stools in infancy

DIAGNOSTIC METHODS, CHEMICAL, BACTERIOLOGICAL AND MICROSCOPICAL. A TEXT-BOOK FOR STUDENTS AND PRACTITIONERS. By RALPH W. WEBSTER, M.D., PH.D., assistant professor of pharmacological therapeutics and instructor in medicine in Rush Medical College, University of Chicago. Fifth edition, revised and enlarged, with 37 coloured plates and 171 other illustrations; 758 pages. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut St., 1916. Price, \$4.50 net.

This is the fifth edition of a work that has already made a reputation for itself. It represents all that is valuable and practical in our laboratory methods, and must prove of great value to everyone who wishes to know the exact details of all our modern methods with full instructions as to any likely obstacles that may interfere with results. We cordially recommend the work to our students and graduates.

Books Received

THE following books have been received and the courtesy of the publishers in sending them is duly acknowledged. Reviews will be made from time to time of books selected from those which have been received.

THE DREAM PROBLEM: NERVOUS AND MENTAL DISEASE MONOGRAPH No. 22. By DR. A. E. MAEDER, of Zurich. Authorized translation by DRs. FRANK M. HALLOCK and SMITH ELY JELLIEFFE, of New York. New York: Nervous and Mental Disease Publishing Company, 1916.

OBSTETRICS, NORMAL AND OPERATIVE. BY GEORGE PEASLEE SHEARS, B.S., M.D., professor of obstetrics and attending obstetrician at the New York Polyclinic Medical School and Hospital. 745 pages with 419 illustrations. Philadelphia and London: J. B. Lippincott Company, 1916.

THE BASIS OF SYMPTOMS: THE PRINCIPLES OF CLINICAL PATHOLOGY. BY DR. RUDOLPH KREHL, ordinary professor and director of the Medical Clinic in Heidelberg. Authorized translation from the seventh German edition by ARTHUR F. BEIFELD, PH.B., M.D., instructor in medicine, Northwestern Medical University School, Chicago. Third American edition, 517 pages. Philadelphia and London: J. B. Lippincott Company, 1916.

THE PROBLEMS OF PHYSIOLOGICAL AND PATHOLOGICAL CHEMISTRY OF METABOLISM. For Students, Physicians, Biologists and Chemists. BY DR. OTTO VON FURTH, professor extraordinary of applied medical chemistry in the University of Vienna. Authorized translation by ALLEN J. SMITH, professor of pathology and of comparative pathology in the University of Pennsylvania. 667 pages. Philadelphia and London: J. B. Lippincott Company, 1916.

THE ART OF ANÆSTHESIA. BY PALUEL J. FLAGG, M.D., lecturer in anæsthesia, Fordham University Medical School; anæsthetist to Roosevelt Hospital. 341 pages with 136 illustrations. Philadelphia and London: J. B. Lippincott Company, 1916. Price \$3.50.

YELLOW FEVER COMMISSION (WEST AFRICA). REPORTS ON QUESTIONS CONNECTED WITH THE INVESTIGATION OF NON-MALARIAL FEVERS IN WEST AFRICA. VOLUME III. Price 10/6 nett. **FOURTH AND FINAL REPORT,** price 5/- nett. Publishers: J. & A. Churchill, 7, Great Marlborough Street, London W., 1916.

DISEASES OF THE DIGESTIVE TRACT AND THEIR TREATMENT. BY A. EVERETT AUSTIN, A.M., M.D., former professor of physiological chemistry at Tufts College, University of Virginia, and University of Texas. 552 pages with 85 illustrations. Publishers: C. V. Mosby Company, St. Louis, 1916. Price \$5.50.

MENTALLY DEFICIENT CHILDREN, THEIR TREATMENT AND TRAINING. BY G. E. SHUTTLEWORTH, B.A., M.D., fellow of King's College, London, and W. A. POTTS, M.A., M.D., medical officer to the Birmingham Committee for the care of the Mentally Defective. Fourth edition, 284 pages. London: H. K. Lewis & Co., Ltd., 136 Gower Street, W.C.; Philadelphia: P. Blakiston's Son & Co., 1916. Price 7/6 nett.

INFECTIONS OF THE HAND: A GUIDE TO THE SURGICAL TREATMENT OF ACUTE AND CHRONIC SUPPURATIVE PROCESSES IN THE FINGERS, HAND AND FOREARM. BY ALLEN B. KANAVEL, M.D., assistant professor of surgery, Northwestern University Medical School, Chicago. Third edition; thoroughly revised. 498 pages with 161 illustrations. Lea & Febiger: Philadelphia and New York, 1916. Price \$3.75 nett.

SKIN CANCER. BY HENRY H. HAZEN, A.B., M.D., professor of dermatology in the Medical Department of Georgetown University. 250 pages with 97 illustrations. Publishers: C. V. Mosby Company, St. Louis, 1916. Price \$1.40.

DISEASES OF THE SKIN. BY RICHARD L. SUTTON, M.D., professor of diseases of the skin, University of Kansas School of Medicine. 916 pages with 693 illustrations. Publishers: C. V. Mosby Company, St. Louis, 1916. Price \$6.50.

Retrospect of Literature

ULCERO-MEMBRANOUS STOMATITIS AND GINGIVITIS AMONG TROOPS; ITS CAUSE AND TREATMENT. By Frederick B. Bowman, M.B., Captain, C.A.M.C., Pathologist to Moore Barracks, Canadian Military Hospital, England. *Proc. Roy. Soc. Med.*, 1916, vol. ix (medical section), pp. 51-60.

During the past few months a large number of cases of severe ulcerative conditions of the throat and mouth have occurred among the Canadian troops in England and the British troops in France. The infection is communicable and is due, apparently, to Vincent's organism, the spirochætæ and fusiform bacilli being present in large numbers. Amœbæ, streptococci, etc., have been found also, but it is only with the disappearance of Vincent's organisms that the condition undergoes cure and this fact may be

taken as adequate proof that these organisms are an essential factor in the causation of the disease. When the gums are attacked the condition is more acute than ordinary pyorrhœa and the state of the mouth in advanced cases strongly suggests scurvy. There is more or less glandular enlargement, the submaxillary and sublingual glands being most frequently affected. The throat condition resembles that seen in syphilis and in some cases cannot be diagnosed clinically from that disease; therefore a Wassermann reaction should be done in all suspicious cases before a definite diagnosis is made or treatment begun. The therapeutic test is valueless as one full dose of salvarsan will usually clear up a badly ulcerated throat due to Vincent's organism. In the series reported by Captain Bowman the temperature varied between normal and 102° F., never rising in any instance to 105° or 108° F. as described by Chalmers and Wilson. Severe depression is a constant and marked symptom of the condition, constitutional disturbance is present, and the breath is extremely foetid. The gums bleed easily, are injected, retracted from teeth, and spongy in appearance. Sometimes the condition becomes chronic and may persist for months.

Treatment.—Emetine has been found to be of no value in the more widespread forms of the disease. Salvarsan has marked effect upon the condition but its use among troops is prohibited both on account of its cost and the instability of its solutions. The use of the following prescription has been found to be effective and the throat, even when deeply ulcerated, may be healed in a short time with a solution of wine of ipecac, 1 oz.; glycerine, 1 dr.; Fowler's solution, 3 dr.; to be used as a mouthwash.

The infection of the gums is very persistent but may be ameliorated and usually cured by the same solution. The pus should be wiped away and the solution carefully applied to the gums and pockets around the teeth. A small applicator should be used. All patients are instructed to drop ten or fifteen drops of the mixture on to a toothbrush twice a day and to brush the teeth and gums vigorously. A paste containing both Fowler's solution and ipecacuanha wine, in small tins, is now issued from the dispensary of Moore Barracks Hospital to be used in combination with the solution. Both paste and solution are marked "Poison" and the patient is instructed to swallow as little as possible of the solution while washing the teeth.

The attention of medical officers in charge of troops is directed to the condition, which is quite common both in England and France, and to the above simple remedy.

Obituary

SIR LAUDER BRUNTON, BART.

It is with much regret that we have to announce the death of Sir Lauder Brunton, Bart., on September 16th, of advanced arteriosclerosis, at his home in London. He had recognized for several months that the end was coming quickly. Attacks of anginal pain occurred on slight exertion, and about the middle of August he wrote to his friends in Montreal that he knew he could not live longer than a few weeks more.

Sir Lauder Brunton may be regarded as the father of English pharmacology. As a student of Schmiedeberg he devoted much time to the study of the exact action of drugs, and his large volume on "Pharmacology, Materia Medica and Therapeutics" was for many years regarded as the best presentation in English of modern pharmacology. He was a prolific writer, and all his contributions to therapeutics and medicine were characterized by sound judgement and careful clinical observation. Among his best known works are the following: "Relation of Chemical Structure to Physiological Action"; "Disorders of Digestion"; "Disorders of Assimilation"; "Lectures on the Action of Remedies"; and there were many others. His younger son at the commencement of the war resigned his position as resident physician in St. Bartholomew's Hospital and joined the army; unfortunately he was killed in action. His eldest son, who was married recently to the daughter of Professor J. B. Porter of McGill University, is at present serving on Brigadier-General Wilson's staff at Valcartier.

PROFESSOR GREGOR BRODIE, F.R.S.

PHYSIOLOGY has sustained a very severe loss by the death of Dr. Thomas Gregor Brodie, Professor of Physiology in the University of Toronto. Professor Brodie died in London on August 20th, in his fiftieth year. He was the son of an English clergyman and was educated at King's College School and at St. John's College, Cambridge. Dr. Brodie held successively the following appointments: Demonstrator of Physiology at King's College, London; Lecturer on Physiology at St. Thomas' Hospital; Director of the Research Laboratories of the Royal Colleges of Physicians and

Surgeons, London; Superintendent of the "Brown" Animal Sanatory Institute, London. For ten years Dr. Brodie was lecturer on Physiology at the London School of Medicine for Women. In 1908 he was appointed to the Chair of Physiology at Toronto. He was made a Fellow of the Royal Society in 1904, and appointed Croonian Lecturer to the Society in 1911; he was also a Fellow of the Royal Society of Canada.

Professor Brodie was a lucid lecturer and a most skilful experimentalist. His researches on the gaseous metabolism of animal tissues and organs, both alone and in conjunction with a number of co-workers, have been of the greatest value in promoting the progress of physiology. Professor Brodie was an authority on the mode of activity of the kidney. His book, "The essentials of experimental physiology," is one of the very best manuals on that subject.

On the outbreak of the war, Dr. Brodie gave his services to the C.A.M.C., No. 4 Canadian General Hospital, and was promoted to the rank of Captain. In this capacity he rendered valuable service in the investigations into the physiological aspects of the lesions produced by the gas used by our enemies in the earlier months of the war.

Professor Brodie is survived by a widow and three sons.

LIEUTENANT-COLONEL ROLAND PLAYFAIR CAMPBELL, M.D.

THE news that reached Montreal on September 20th, that "Bly" Campbell had met his death at the front in France from a shell which destroyed the dressing station in which he was working, was a great shock to the medical community of Montreal. He was a universal favourite and was looked upon as the most able of the younger surgeons. Dr. Campbell was born in Montreal in 1876 and was the son of the Reverend Professor J. Campbell, LL.D. and Mary Helen Playfair. After passing through the High School, he entered the Arts Faculty of McGill University and graduated in 1897 with honours. He then entered the Faculty of Medicine and graduated in 1901 with honours in all subjects. He immediately joined the staff of the Montreal General Hospital as an interne and remained two years doing excellent work and achieving a reputation as a most efficient, able and painstaking man, always on hand and putting duty invariably before pleasure. He afterwards was some time in Germany as second assistant to

the celebrated Professor Mickulicz of Breslau. On his return to this country he was appointed medical superintendent of his old hospital and after holding this position for two years was appointed an out-door surgeon. As he had always paid particular attention to genito-urinary surgery, on the establishment of this department at the General Hospital he was appointed chief of clinic and held this position at the time of his death.

When the war started, Lieutenant-Colonel Campbell was in command of No. 5 Field Ambulance and went with it to Valcartier. For some reason or other he was not given the command for overseas but joined No. 1 General Hospital under Colonel Murray MacLaren and spent the ensuing winter on Salisbury Plains. In 1915 he returned to Canada to form and command No. 6 Field Ambulance and on July 15th of that year went to France and had been doing most valuable work there up to the time of his death. His ambulance was for a long time near Ypres but latterly had been removed to the Somme front.

The loss of Dr. Campbell will be much felt both by the General Hospital and McGill University, where he had earned a reputation for himself as an investigator and teacher. In his own specialty he was recognized as an authority both at home and abroad and promised much for the future had he survived. In addition to his wide knowledge of genito-urinary and general surgery, Lieutenant-Colonel Campbell was an expert pathologist and bacteriologist. He had the confidence of his colleagues and would in time have been a great consultant. Notwithstanding his great knowledge, his was a very modest nature and although "knowledge is the prerogative of youth" he knew he had much to learn and was always ready to acquire more knowledge. Lieutenant-Colonel Campbell was beloved by all his brethren for his own sake, his nature was not aggressive but was full of "sweet reasonableness" and he was always ready to pour oil on troubled waters. Although not aggressive he was sure of his opinions and had a knowledge so certain that when he had thought out a problem and come to definite conclusions he was unshakable in his position. The universal feeling of regret among his colleagues both in college and hospital and the many testimonies offered as to his skill and ability amongst the profession at large give good evidence of the estimation in which he was held. All who have known him feel that they have lost a dear friend as well as a distinguished colleague.

DR. DANIEL HENNESSY, of Bangor, Maine, died September 10th, in the eightieth year of his age. He was born in 1836 at Bandin, Ireland, and his early life was spent on a farm in Melrose, Westmoreland County. Educated at Mount Allison University, then the Mount Allison Wesleyan Academy, and St. Dunstan's College, Charlottetown, he afterwards entered the Geneva Medical College, now the University of Syracuse, where he obtained his medical degree. He practised for a time at Pointe de Bute, New Brunswick.

DR. GEORGE SANSON died at the Royal Victoria Hospital, Victoria, British Columbia, on September 5th. He was born at Petrolea, Ontario, in 1862. For a time he was surgeon of the western division of the Canadian Pacific Railway and, in 1888, went into practice at Vernon. The following year he removed to Clinton and later went to Lilloote and then to Ashcroft, where he was practising when taken ill.

DR. W. E. MILNE, of Manchester, England, died suddenly at Vancouver on September 5th.

DR. J. E. DOHAN, of Three Rivers, Quebec, died on September 10th, after a few hours illness.

DR. JAMES E. SCHON, of Vernon, British Columbia, died suddenly from heart disease.

DR. A. GOLTMAN, who died at Montreal on September 15th, graduated from McGill University in 1896 and completed his medical studies in Edinburgh and London. He practised at Sioux Falls, South Dakota. He leaves a widow and three daughters.

DR. GILBERT TWEEDIE, of Toronto, died August 23rd, in the ninetieth year of his age. A native of Dumfriesshire, Scotland, he entered the University of Edinburgh with the intention of qualifying to be a medical missionary but came to Canada before he had completed his studies. He entered Knox College, Toronto, in due course was ordained, and became Presbyterian minister at Lindsay. He was unable to continue his work, however, because of a throat affection and returned to the study of medicine at the University of Toronto. Dr. Tweedie practised in Dresden, Ontario, for some

years and, in 1891, became medical superintendent of the Riverdale Hospital, Toronto. He retired in 1908.

DR. F. R. CHAPMAN, of Saskatoon, died at St. Paul's Hospital on August 29th. He was born at Toronto in 1880 and graduated from the University of Toronto in 1908. He practised for a short time at Lanigan before going to Saskatoon where he became medical officer of health. For the past two years he had been in private practice. His death was due to an unfortunate accident, he having taken carbolic acid by mistake. A widow and one child are left to mourn him.

DR. JOSEPH LOCKARY died at St. Stephen, New Brunswick, on August 14th, in the forty-ninth year of his age. He was in practice at West Roxbury, Massachusetts.

DR. F. D. W. BATES, of Hamilton, died August 25th, after a short illness. Dr. Bates was well known in Hamilton where he had practised for some years. He was a specialist in diseases of the eye, ear, nose and throat.

DR. CYRUS ROSS MACINTOSH, of Creelman, Saskatchewan, died August 24th, in the thirty-fifth year of his age. After graduating in Arts from Dalhousie University, he entered the Manitoba Medical College, where he graduated in 1908. He then went into practice at Lauder, Manitoba, and seven years later entered the mercantile marine as ship's surgeon. Dr. MacIntosh returned to Canada about two years ago and took up practice at Creelman. He leaves a widow.

News

ONTARIO

OWING to his prolonged absence on active service, Colonel H. A. Bruce has resigned from the presidency of the Toronto Academy of Medicine. Dr. John Ferguson has, therefore, been elected president, and Dr. D. J. Gibb Wishart vice-president, of the Academy.

THE following contagious and infectious diseases were reported in the province during the month of August: smallpox, 5 cases; scarlet fever, 37 cases; diphtheria, 183 cases, 11 deaths; measles, 243 cases; whooping cough, 190 cases, 7 deaths; typhoid, 190 cases, 18 deaths; tuberculosis, 103 cases, 69 deaths; infantile paralysis, 44 cases, 5 deaths; cerebrospinal meningitis, 20 cases, 15 deaths.

THE Alexandra Hospital at Ingersoll is to be enlarged by the addition of a new wing, which will be known as the Dr. Carroll wing.

QUEBEC

THE semi-annual meeting of the College of Physicians and Surgeons of the Province of Quebec took place at Montreal on July 12th, under the presidency of Dr. Arthur Simard, of Quebec. On this occasion it was decided that the number of governors of the College should be reduced.

MANITOBA

DR. G. A. PAILLE, of St. Charles, has been appointed house surgeon to the St. Boniface Hospital, Winnipeg.

ALBERTA

THE Military Hospitals Commission has taken over the Rocky Mountain Sanatorium, near Frank, for the treatment of soldiers suffering from tuberculosis. The sanatoriums at Ninette, Manitoba, and Tranquille, British Columbia, are already filled. Captain A. E. Porter has been appointed medical superintendent of the Rocky Mountain Sanatorium.

SASKATCHEWAN

A HOSPITAL is to be built at Edam. It will be named The Lady Minto Hospital of Edam.

BRITISH COLUMBIA

A GRANT of \$1,000 has been made by the provincial government to the Jubilee Hospital at Vernon.

MEDICAL COLLEGES

Dalhousie University

WORK in all the five years of the medical curriculum began at the University of Dalhousie on September 20th. The number of freshmen is about twenty, which number includes four women students. There is a good entry also in the faculty of dentistry.

There have been a few changes in the teaching staff in the medical faculty—Dr. George MacIntosh and Dr. Carney are appointed lecturers in systematic medicine.

By kind permission of Colonel Grant, head of the Army Medical Department at Halifax, the faculty of medicine has been permitted to make use of the medical and surgical wards in the Military Hospital for teaching purposes. By this arrangement a large amount of clinical material will be available for instructional purposes.

McGill University

CAPTAIN J. K. BERTRAM, who was killed in action on September 22nd, was the son of Dr. T. A. Bertram, of Dundas, Ontario. He was a fourth-year medical student at McGill University and was in the twenty-sixth year of his age.

ARMY MEDICAL SERVICES

THE following officers have been transferred from the R.A.M.C. to the C.A.M.C.: Captains G. W. R. Stone, of Parry Sound, Ontario; S. R. Johnstone, of Dartmouth, Nova Scotia; N. B. Taylor, of Toronto; D. W. Wade, of Cranbrooke, British Columbia. Other officers who have joined the C.A.M.C. are: Captain Armand Paré, of Pointe aux Trembles, Montreal, previously with the French Red Cross; Captains J. H. Watters, of Quebec, and J. H. A. Paquette, of Montreal, who saw service in Serbia; Captains G. E. Binkley, of Hamilton, G. A. McPherson, of Toronto, G. M. Hanna, of Brantford, and W. G. Lougheed, of Toronto.

THE following doctors have joined the R.A.M.C.: Dr. W. G. Weaver, of Fredericton, New Brunswick; Dr. Moyse, of Dugald, Manitoba; Lieutenant James Robertson Kerr, C.A.M.C.; Lieutenant W. C. Connell, C.A.M.C.

DR. A. BLAIS, of Edmonton, has joined the staff of No. 4 Stationary Hospital at St. Cloud, Paris.

CAPTAIN PUBLLOW, of Kingston, has been appointed Medical Officer to the 155th Battalion in succession to Captain Harper, of Madoc.

MAJOR W. H. IRVINE, C.A.M.C., of Fredericton, New Brunswick, has joined a field ambulance for overseas service.

THE following promotions in the Canadian Army Medical Corps have been announced: To be temporary Colonel: Lieutenant-Colonel C. W. F. Gorrell. To be temporary Lieutenant-Colonel: Major F. H. Mewburn. To be temporary Majors: Captain J. M. Nettleton, P. G. Bell and H. W. Coates. To be temporary Captains: R. A. Kennedy, J. G. Wilson, J. G. Sutherland, G. S. Williams (late Lieutenant R.A.M.C.), R. B. Crompton, D. A. Webb, Captain T. A. Watterson (Canadian Militia), Captain H. S. Smith, Lieutenant W. A. Smith, Sergeant H. W. Byers, Lieutenant H. B. Northover. Major W. Creighton to revert to the temporary rank of Captain at his own request. To be temporary Lieutenant: R. D. Ferguson.

THE Military Cross has been conferred by His Majesty upon Lieutenant William John Knight, R.A.M.C., "for conspicuous gallantry and devotion to duty when in charge of an advanced dressing station under heavy shell fire. He continued to attend the wounded with great coolness." Lieutenant Knight was born in Huron County, Ontario, and graduated from Western University in 1911. He was house surgeon at St. Joseph's Hospital, London, Ontario, before he joined the colours.

CAPTAIN R. D. SANSON, C.A.M.C., has been declared medically unfit for further service. Captain W. A. Smith, C.A.M.C., is granted three months sick leave.

MAJOR ALLAN RANKIN, C.A.M.C., has been appointed medical officer in charge of the water supply of the Canadian Corps Area and is attached to the office of the Deputy Director of Medical Services. He is also acting as secretary to the Corps Water Board.

LIEUTENANT-COLONEL S. W. PROUSE is the commandant of No. 4 Casualty Clearing Hospital, which was recently recruited in Winnipeg. The other officers are: Majors E. T. Cadham and

W. W. Musgrove, Captains D. F. McIntyre, Jas. Pullar, and J. O. Todd, and Captain R. B. Mitchell, Adjutant.

THE Military Cross has been awarded to Captain John R. Irwin, R.A.M.C., of Cobourg, Ontario. Captain Irwin was summoned to Windsor Castle and received the decoration from the hands of His Majesty.

DR. FARRELL, of Tweed, Ontario, has joined the C.A.M.C.

DR. TOM SAVAGE, of the French Hospital, New York, has joined the staff of the Chateau-de-Passy Hospital, France. He has been given an honorary rank in the French service.

CASUALTIES

Killed in Action

LIEUTENANT-COLONEL R. P. CAMPBELL, C.A.M.C.

LIEUTENANT E. H. M. McVICKER, R.A.M.C.

Died on Service

LIEUTENANT T. W. F. McKNIGHT, R.A.M.C., who died at Bombay on September 4th, from pyrexia, was the son of Mr. John McKnight of Everett, Ontario, and was born near Tamworth. He was a graduate of Queen's University where he took his B.A. in 1910 and his medical degree in 1912. He also passed the examinations of the Medical Council of Canada, and received the degree of L.M.C.C. He was in practice at Everett until last April when he joined the Royal Army Medical Corps and in June was assigned to duty in the military hospital at Bombay.

Wounded

CAPTAIN RICHARD COATSWORTH, R.A.M.C.

CAPTAIN W. LAURENCE, C.A.M.C., of Wittemore, Chicago.

CAPTAIN RICHARD COATSWORTH, R.A.M.C.

CAPTAIN BURNETT E. KELLY, C.A.M.C., of Budgenorth, Ontario.

CAPTAIN HOWARD B. JEFFS, C.A.M.C., of Toronto.

Wounded, but remaining on duty:

CAPTAIN EDWARD S. JEFFREY, C.A.M.C., of Toronto.

Medical Societies

CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS

THE fifteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis was held in the Hôtel de Ville, Quebec, on September 12th and 13th, under the presidency of Senator J. W. Daniel, M.D., of St. John, New Brunswick.

The delegates were the guests of the city of Quebec, and their stay in the ancient capital of Canada was made most pleasant by the many attentions showered upon them by the citizens, and particularly the medical profession of the city.

The principal subjects discussed on the first day were, "Why notification of tuberculosis is necessary," and "Reasons why open cases should be isolated," opened by Drs. P. H. Bryce and J. H. Holbrook.

At the evening session an official address of welcome was delivered by His Honour Sir Evariste Leblanc, Lieutenant-Governor of the Province of Quebec, whose earnest words bespoke his hearty sympathy with the work of the Association. It was his first opportunity to speak in public since the disaster when ten men lost their lives in the fall of the central span of the great Quebec Bridge, and he took advantage of the occasion to extend his deepest sympathy to the families of those carried down with the enormous structure.

The public address on Tuberculosis was given by Professor J. E. Dubé, of Montreal, who gave a most excellent exposition of the present status of knowledge of the disease and of the practical methods of application of means of prevention.

Dr. David Townsend, of the Jordan Memorial Sanatorium, River Glade, New Brunswick, gave a paper in which he presented an earnest plea for the early diagnosis of tuberculosis as the great factor in securing permanent results in treatment.

Professor Arthur Rousseau, M.D., of Laval University, presented an interesting paper upon the place of the dispensary in the anti-tuberculosis campaign, in which he emphasized his opin-

ion that every general hospital should have its tuberculosis clinic which, with its visiting nurse, would prove a most useful adjunct in the discovery of open cases, and would soon lessen the number of cases of infection.

Dr. F. C. Neal, of Peterborough, in an excellent paper, outlined the methods of anti-tuberculosis work in a large town, particularly as developed in his own city. He paid a tribute to the work of the visiting nurse, and indicated how the Peterborough organization had secured the coöperation of the citizens and of the Health Department. The paper is a valuable one which should be of great service as a guide to the development of similar anti-tuberculosis measures in other towns. It will appear in full in a later issue of the JOURNAL.

At the close of the meetings the joint sessions of the Canadian Public Health Association and the Services Sanitaires de la Province de Quebec began and continued two days.

Among those present from Ontario were: Dr. Charles D. Parfitt, Gravenhurst; Dr. R. W. Bell, Dr. Adam Wright, Toronto; Major J. W. S. McCullough, Captain Fitzgerald, Camp Borden; Dr. Helen MacMurchy, Ex-Controller McCarthy, F. A. Dallyn, C.E., Dr. Naylor, Dr. J. H. Elliott, Toronto; Dr. F. Montizambert, Dr. P. H. Bryce, Dr. Race, Sir James Grant, Dr. S. H. Holbrook, Hamilton; Dr. F. C. Neal, Peterborough. Much of the success of the meeting was due to the untiring efforts of the energetic secretary, Dr. George D. Porter.

At the close of the last session on Wednesday, the delegates were motored to Kent House, Montmorency Falls, to a luncheon as guests of the Municipal Council. It was a delightful day, the roads were at their best and all had a glorious view of the wonderful waterfall where the water drops a sheer 280 feet into the St. Lawrence below. All have carried away most excellent memories of the days spent in and about the city founded by Champlain.

FIFTEENTH ANNUAL REPORT OF THE EXECUTIVE COUNCIL OF THE CANADIAN ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS

THE fifteenth annual convention of the Canadian Association which was to have been held in Vancouver last year, was reluctantly postponed owing to the outbreak of war and the consequent departure of a number of our most active members. Our Association,

Read by the secretary, Dr. G. D. Porter.

however, published its Annual Report in both French and English. This is a volume of 250 pages, comprising the reports from the various local Societies, reports of the Secretary and Treasurer, revised directories, and other useful information, and over ten-thousand copies have been distributed.

In reviewing the work of the past year it is encouraging to note that in spite of the war and its many drawbacks, very considerable progress has been made. Practically all the institutions have been progressing steadily. During the year no less than five new institutions have been opened, four have been enlarged, and the building of another has already begun.

This year there has been organized in Toronto the Hospital Tuberculosis Clinics, in which four hospitals have united in co-operation with the Board of Health for tuberculosis work entirely. While in some districts economy called for the dismissal of the visiting nurse, in other parts more have been added to the staff of those already doing anti-tuberculosis and general health work. In Toronto the Medical School Inspectors examine for tuberculosis all children having a history of exposure; the Board of Education has established two Forest Schools for delicate children in the summer, and two open-air class rooms for use in the winter have been opened. These children are not a menace to others, but when suffering from open tuberculosis they are excluded from school and sent to the Queen Mary Hospital at Weston for tuberculous children, or visited in their homes by the city Board of Health nurses.

Among the new institutions opened during the year the St. John Hospital for advanced cases is of prime importance as is the new Municipal temporary hospital in the city of Quebec, for the proper care of the advanced cases is one of the most necessary steps to be taken in the prevention of the spread of tuberculosis.

We are pleased to note that the Prince Edward Island Sanatorium and the Waterloo County Sanatorium have both been completed and are now ready for patients. Two private sanatoria have been opened, the Calydor, at Gravenhurst, Muskoka, which should prove most useful in showing that tuberculosis can be properly treated in Canada without the waste of energy and money too often expended in long and distant travel in a foreign land; and the Sunnyview, at Kamloops, British Columbia. The King Edward Sanatorium at Tranquille, British Columbia, is adding a pavilion. The Minnewaska Sanatorium at Gravenhurst has been enlarged to double its former capacity for the special purpose of looking after returned tuberculous soldiers. The

Muskoka Free Hospital has also added two pavilions for the same purpose, and the Sanatorium at Brantford has added a new pavilion. The Laurentian Sanatorium has arranged for an increased bed capacity, especially for returned soldiers, and the work on the new hospital for advanced cases in Hamilton is nearing completion.

In 1908 there were only 250 special beds for patients suffering from tuberculosis available in all Canada. In 1911 there were 900, while now we have 2,000 among the various special hospitals and sanatoria throughout the Dominion. The necessity for this increase, which is as yet far from sufficient, is most apparent, and as the number of returned soldiers who have developed tuberculosis at the front are added to the number already with us, the need for accommodation will be still greater.

Interest in the more chronic diseases, such as tuberculosis, will naturally give place for a time to a greater attention to those more acute infections, such as typhoid, typhus, dysentery, tetanus and septicæmia, which are always threatening our armies in the field and in the trenches. It must be borne in mind, however, that the soldier's very strenuous life, with its hard campaigns and prolonged exposures, to say nothing of the injurious effect of inhaling noxious German gases, will inevitably leave many of them in just that physical condition so favourable to the inroads of tuberculosis. Colonel Primrose has already reported from the front that in a large percentage of the cases examined, which proved to be tuberculous, it was obvious that an active condition had been engrafted upon a healed lesion. "It is not surprising," he says, "that there is danger of pulmonary tuberculosis developing in those who are predisposed thereto."

The measures of relief instituted in the past will, therefore, be most useful for the future when we may look for a larger number of tubercular cases amongst us than we have had before. This has already been demonstrated by reports from Switzerland where it is said "twenty-five hundred tuberculous prisoners will shortly arrive from belligerent countries for special treatment." In France they are also providing pavilions on hospital grounds for the tuberculous soldiers, while in Canada an increasing number of returned soldiers are being received into our institutions because of affections of the lungs.

While sanatorium treatment of tuberculosis is to be advised for all those who can possibly avail themselves of the advantages which it offers, it must not be supposed that the disease cannot be successfully treated in the home, provided ordinary comfort and

the necessary care are there procurable. For those who are compelled to remain at home education, as well as medical care and nursing, is required. This work of education must always continue, for without creating an intelligent interest in the public mind, and securing general coöperation, no permanent improvement can take place. This of course, is the work for which our Association was organized and for which it now labours.

It may be interesting to quote from one or two recent editorials regarding our work. *The British Journal of Tuberculosis* for July says: "At a time when Canadians are accomplishing great deeds for the protection of the Empire, it might be well to remember that in no other part of our overseas Dominions has the Anti-tuberculosis Campaign been more efficiently conducted." An editorial from *Printer and Publisher* calls attention to our report and says that it offers suggestive material to editors throughout the country for reading material for the public, and concludes with the following statement: "If the Government of Canada finds it worth while, on the score of economics and humanity, to grant ten thousand dollars a year to the work of fighting consumption, then local newspapers will also find it worth while to devote some attention to the cost of tuberculosis to the communities in money, happiness and morals." A large number of other Canadian editorials during the past year have also called attention to the importance of the work of this Association.

At the last annual convention of the Canadian Public Health Association a resolution to the Prime Minister was passed in which the following occurred: "We wish to place on record our appreciation of the work of the Canadian Association for the Prevention of Tuberculosis, which your Government has so ably assisted. Since its formation you will be pleased to learn that tuberculosis has been materially lessened in Canada."

As the Red Cross activities have recently been largely monopolizing the energies of those upon whom we particularly depend for advancing the anti-tuberculosis work, it was felt that a number of engagements for lectures and organization work, previously arranged for, were better postponed for a time, and this part of our work has suffered temporarily in consequence. A number of lectures were delivered, however, and the subject of tuberculosis and its prevention has been placed, by request, before a number of important educational institutions during the year. In connexion with lectures it might be well to point out that while our Association was the first in this field, and for a time the only organization doing this work, now there are others, and the office of this Association

is constantly receiving requests for material for lectures from local doctors, nurses, social workers and the clergy; thus we are always supplying the ammunition, if not actually on the firing line. This work, therefore, is now much more extensive than ever before. The demand for our literature is steadily on the increase. During the past year we have, as already mentioned, published our Annual Report in English and in French, and have already distributed over 10,000 copies. We have distributed some 10,000 copies of our pamphlets on ventilation, about 2,000 reprints, 1,000 books on treatment and over 100,000 leaflets. The requests for literature come from the most obscure country districts as well as from public libraries and social workers all over the country. Over sixty public libraries in the United States have requested copies of our reports.

Among the various requests for information addressed to this office were letters from the military authorities in the Second Division regarding sanatorium accommodation in Canada. One came from the International Harvester Company, of Chicago, along the same lines in connexion with the placing of their Canadian workmen afflicted with tuberculosis. From the University of Denver we received a request for a complete set of our literature for the Health and Welfare Exhibit; a similar request from the Provincial Health Officer of Nova Scotia for exhibits there; requests for literature for the newly organized Association of Tuberculosis Clinics in Toronto, and for parcels of literature from organizations in different parts of the country.

Our Association has frequently received requests for some form of tuberculosis exhibits to be used in instructing school children, or to be used at health lectures, at county fairs, and at various educational conventions. We have, therefore, decided to prepare a number of duplicate sets of these exhibits which can be placed in small parcels and sent wherever requested. These should prove of great assistance in teaching this important subject, and also add greatly to its interest. Such exhibits will do away with the necessity of lantern slides which cannot always be used conveniently. These exhibits will consist of maps, charts, statistics and photographs helpful in explaining the disease, its prevalence and methods of prevention, and as we hope to have them arranged and catalogued, so that a layman can easily understand and explain them, they should prove a great advance in our educational work.

We regret to record the death this year of Dr. Bruce Smith, Inspector of Hospitals for Ontario, and for many years one of the active members of our Executive Council, and one whose public addresses and endeavours along educational lines have always been

so helpful. One of his latest reports dwells very clearly upon the necessity for proper housing in the eradication of tuberculosis.

"In our fight against this disease, we must not forget, as Dr. Hattie has pointed out in the *Nova Scotia Health Bulletin*, "That we are yielding up to it a sacrifice of life which far surpasses that which has as yet been required of us in the war zone, and which is not at all likely to be exceeded by our participation in the great struggle for the liberty of nations. There must, of course, be no relaxation of our effort to bring the War to a successful issue, but we must not entirely neglect this other foe, which is so steadily and constantly depleting our population and preventing us from properly developing our resources."

CANADIAN PUBLIC HEALTH ASSOCIATION

THE fifth annual congress of the Canadian Public Health Association was held jointly with the Canadian Association for the Prevention of Tuberculosis and the "Services Sanitaires de la Province de Quebec" in Quebec on September 13th and 14th last. There was a very representative attendance of those interested in Public Health, from various parts of the Dominion. Those attending the congress were most hospitably entertained by the provincial and civic authorities.

Owing to the regrettable illness of Dr. Charles J. Hastings of Toronto, president of the Congress, the meetings were presided over by Dr. J. D. Pagé, the president-elect for 1916-1917. The meetings were well attended, representatives from the various provinces being present.

Amongst the interesting items on the programme, was a symposium on Immigration in which Dr. C. K. Clarke of Toronto, Dr. J. D. Pagé of Quebec, Mr. J. D. Woodsworth of Regina, Mr. J. S. Shaver of Fort William and Dr. M. M. Seymour of Regina read papers. The discussion was led by Dr. F. Montizambert of Ottawa, Dr. P. H. Bryce of Ottawa, Dr. W. H. Hattie of Halifax, Dr. Helen McMurchy of Toronto and others.

At the evening sessions held in Laval University papers were read by Dr. Michael Steele of South Perth on "A Federal Department of Health," by Sir James Grant of Ottawa on "Carriers of disease" and by Dr. Arthur Vallee of Quebec on "De l'influence de la bactériologie sur les développements de l'hygiène moderne," and by Ex-Controller McCarthy of Toronto on "Economic values of preventive medicine."

In the absence of Dr. Hastings the presidential address was

read by Dr. P. H. Bryce of Ottawa. Other communications were read, as follows: "Social investigations in relation to public health," by Madame Gerin-Lajoie of Montreal; "Value of milk depots," by Madame Jules Tessier, Quebec; "Modern sanitation in camp," by Major J. W. S. McCullough, Toronto; "The occurrence of certain types of *B. coli* in some waters of the province, and their sanitary significance," by Mr. H. H. McCrady of Montreal, "Activated sludge treatment of sewage," by Mr. W. H. Clarke, of Lawrence, Massachusetts, and a paper by Dr. J. G. Fitzgerald on "The work of the Antitoxin Laboratory of the University of Toronto."

Addresses of welcome were made by Sir Lomer Gouin and His Worship the Mayor of Quebec.

Resolutions were adopted urging the establishment of a Federal Department of Public Health and pointing out the desirability of the adoption by the various provinces of the Model Draft Act on Town Planning, prepared by Mr. Thomas Adams of the Commission of Conservation, Ottawa. The next Annual Congress is to be held in Ottawa in 1917.

The election of officers resulted as follows:

Patron, Field Marshal His Royal Highness the Governor-General.

Vice-Patron, Rt. Hon. Sir R. L. Borden, P.C., M.P., G.C.V.O., Premier.

Past Honorary Presidents and Honorary Vice-Presidents: Sir Edmund Osler, Sir James A. Grant, Hon. A. L. Sifton, Hon. J. M. Methuen, Rt. Hon. Sir Wilfrid Laurier, Hon. W. Scott, Hon. Sir Sam Hughes, Hon. Martin Burrell, Sir John Eaton, Hon. W. J. Hanna, Dr. P. H. Bryce, Sir Clifford Sifton, Hon. T. C. Norris, Hon. G. H. Murray, E. R. Woods, Esq., Hon. Sir R. McBride, Hon. H. K. Fleming, Hon. Sir Lomer Gouin, Hon. J. D. Hazen, Hon. George Langley, Dr. Adam H. Wright, Hon. R. G. Brett, M.D.

Honorary President: F. Montizambert, Esq., M.D., C.M.G.

President, J. D. Pagé, Esq., M.D., Quebec.

Vice-President: W. H. Hattie, Esq., M.D., Halifax, N.S.

Vice-Presidents: Dr. J. A. Hutchinson, Quebec; Dr. Underhill, British Columbia.

General Secretary: J. G. Fitzgerald, M.B., Toronto.

Treasurer: George D. Porter, M.B., Toronto.

Executive Council: T. A. Starkey, M.D., D.P.H., past president, Montreal; Charles H. Hodgetts, M.D., D.P.H., past presi-

dent, Ottawa; J. W. S. McCullough, M.D., D.P.H., past president, Toronto; M. M. Seymour, M.D., D.P.H., past president, Regina; C. J. Hastings, M.D., Toronto; E. P. Lachapelle, M.D., Montreal; Dr. F. Torrance, B.A., D.V.S., Ottawa; Dr. H. Stewart, Ninette, Man.; Miss Eunice Dyke, Toronto; Gen. C. G. Jones, G.G.H.S., D.G.M.S., Ottawa; H. W. Hill, M.D., D.P.H., London; John Stewart, M.D., LL.D., Halifax; S. L. Walker, M.D., Truro; S. R. Jenkins, M.D., Charlottetown; Dr. P. J. Maloney, Cornwall; Dr. S. Boucher, Montreal; F. F. Westbrook, M.D., Vancouver; Dr. Arthur, Nelson, B.C.; W. C. Laidlaw, M.D., Edmonton; Mrs. A. M. Huestis, Toronto; Mrs. J. C. McLimont, Quebec; Miss Helen R. Y. Reid, Montreal; W. W. Andrews, LL.D., Regina; J. B. Hollingsworth, D.V.S., Ottawa; Hon. Senator Daniels, St. John, N.B.; Dr. Helen MacMurchy, Toronto; A. Simard, M.D., Quebec; Hon. Dr. Young, Victoria; Dr. Johnson, Charlottetown; Dr. Nadeau, Quebec; Dr. G. G. Melvin, St. John, N.B.; Dr. Clarence Miller, Stellarton, N.S.; Dr. T. J. Norman, Edmonton; Dr. Anderson, Toronto; Hon. J. A. Calder, Regina; F. A. Dallyn, C.E., Toronto; T. A. Murray, Toronto; Dr. A. B. Alexander, Winnipeg; Mrs. J. Tessier, Quebec.

SANITARY SERVICES OF THE PROVINCE OF QUEBEC

THE sixth annual meeting of the Sanitary Services of the Province of Quebec took place at Quebec on the 12th, 13th and 14th of September, under the presidency of the Honourable Senator J. B. R. Fiset, M.D., of Rimouski. The meeting opened with an able address by the President. The papers presented treated of a number of important problems of public health and in many cases led to interesting discussions. The report of the Committee on Venereal Disease was read by Dr. P. V. Faucher, of Laval University and Dr. A. Corsin presented the report of the Committee on Infant Mortality. The question of the medical inspection of schools was taken up by Dr. Arthur Simard, as chairman of the Committee appointed to study the matter. Dr. J. A. Beaudouin, medical officer of health, Lachine, also dealt with this matter, emphasizing the advantages of such inspection. The officers elected for the year 1916-17 are: honorary president, Hon. Senator Fiset, M.D., Rimouski; president, Dr. Arthur Simard, Quebec; vice-president, Dr. J. A. Hutchinson, Westmount; secretary, Dr. J. A. Beaudouin, Lachine. The next convention will take place at Rimouski.

SASKATCHEWAN MEDICAL ASSOCIATION

THE ninth annual meeting of the Saskatchewan Medical Association, which took place at Regina on July 18th and 19th, was one of the most successful gatherings of the Association, sixty-two members being in attendance. The presidential address was delivered by Dr. George P. Bawden, of Moose Jaw. A number of interesting papers were read, two of them being of particular interest at this time, namely, that by Dr. Myers, of Saskatoon, on "The returned disabled soldier" and one by Dr. Valens, also of Saskatoon, entitled "Some matters relating to the medical profession." Speaking of the problem of providing for the disabled soldier on his return to Canada, Dr. Myers said that the solution of this problem should not be left entirely to the Military Hospitals Commission but each individual should undertake his share of the responsibility. The provision of medical treatment was essentially a matter for the medical profession to deal with. Up to July 13th, 1916, 236 disabled soldiers had returned to the province of Saskatchewan and of these 150 required further medical treatment. Dr. Myers suggested that, wherever possible, crippled soldiers should return to their former employer—perhaps in some new capacity—and should not be segregated or gathered in large colonies. New industries should be established to provide employment for these men and goods manufactured by them should be labelled "returned soldier". Occupations in the open, such as market gardening and poultry raising, should be made available for those suffering from arrested tuberculosis and nervous diseases, and small sheep ranches might be established on land given by the government, the money for the purchase of the flock to be advanced. He suggested also that a census be taken of all employers of labour in the province and of positions that are or could be made available in the various services of the government. The state, he thought, might even stipulate when awarding contracts to civil concerns that a proportion of the work be given to war cripples. This paper was well received and later at the business session the following resolutions were passed:

"Resolved, that it is the sense of the Association in session that the government conduct a census of all available positions of employment within its service and among the employers of labour in the province, with a view to employment of disabled and unfit returned soldiers."

"Also that the Saskatchewan Medical Association feel constrained to offer their services to the government for use in the solution of these problems in whatever way the government may see fit."

Dr. Valens chose as the subject of his remarks the provision of adequate medical attendance and nursing care for the inhabitants of the outlying districts of the province. This is a matter that has been under discussion for some time and is one of extreme importance. A committee was appointed to gather information as to the actual conditions, to confer with representatives of other bodies interested in the question, and to report to the Association.

At the business session the following resolution was passed:

"Be it resolved, that this Association believes that the perpetuation of the Council of the College of Physicians and Surgeons of Saskatchewan beyond its proper term of office is not conducive to the best interests of the medical profession in the province, nor to the members overseas with the colours, and that an election should be held immediately, and that due and ample notification of such election be made to the members of the College with proper statement of dues in arrears, and that a copy of this resolution be forwarded to the Council."

The next annual meeting of the Association will be held in Saskatoon on the third Tuesday of July, 1917. The officers for the session 1916-1917 are: honorary president, Dr. F. A. Corbett, Regina; president, Dr. R. H. Love, Saskatoon; first vice-president, Dr. D. W. Graham, Swift Current; second vice-president, Dr. G. F. Cliff, Mortlack; permanent secretary-treasurer, Dr. J. W. Turnbull, Regina.

PRINCE EDWARD ISLAND MEDICAL SOCIETY

THE annual meeting of the Prince Edward Island Medical Society took place at Charlottetown on July 11th, the president, Dr. Carruthers, in the chair. A report was presented by the committee appointed to revise the scale of medical fees and was adopted. Papers were read by Dr. Ridsen, of Toronto, Dr. Carruthers, Dr. McMillan, Dr. Tanton, and Dr. Warburton. The election of officers resulted as follows: president, Dr. R. J. MacDonald, of St. Peter's; vice-presidents, Dr. McPhee, of Summerside, Dr. Dewar, of Charlottetown and Dr. A. A. McDonald, of Souris; secretary, Dr. Yeo (re-elected); treasurer, Dr. McMillan (re-elected); executive committee, Dr. John McNeill, Dr. Conroy, and Dr. McIntyre. The next annual meeting will be held at Summerside.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY

THE thirteenth regular meeting was held in the Royal Victoria Hospital, on Friday evening, April 7th, 1916. On this occasion the Society was the guest of the Hospital Medical Board, which submitted the following highly interesting programme:

PART I. A.—INFORMAL PRESENTATION OF LIVING CASES IN WARD "A":

Dr. Armstrong—(a) Carcinoma of the cesophagus (with Dr. Rogers). (b) Obstruction; entero-enterostomy; resection of the bowel; lateral anastomosis. (c) Intestinal obstruction; drainage.

Dr. Ballon—(a) Zygomatic abscess in infant; (b) Chronic suppurative otitis media c. labyrinthine fistula (right); acute suppurative mastoiditis c. facial paralysis (left); (c) Bezold's abscess with facial paralysis.

Dr. Burère with Dr. Mason—Series of skin cases.

Dr. Byers—(a) Needling for high myopia; result after ten years; (b) Elliot and Herbert operations for glaucoma; special features; (c) Convergent strabismus; double advancement; special features.

Dr. Chipman—(a) Post operative hernia with escape of bowel; re-suture of wall with recovery; (b) Puerperal bacteræmia; chart illustrating the use of eusol.

Dr. Fry—(a) Cranio-tabes in breast-fed infant; (b) Tuberculous ganglia of wrist in two-year-old child.

Dr. Garrow—(a) Extensive ulceration of the abdomen, following gangrenous appendicitis. Wassermann test negative; (b) Gun-shot wound of the humerus, with destruction of a part of the musculo-spiral nerve; (c) Transplantation of part of a rib to replace half of the body of the lower jaw removed for sarcoma; (d) Acute pyelo-nephritis (with specimen); (e) Intussusception due to lympho-sarcomatous growth involving the ileum, simulating acute appendicitis (with specimen); (f) Acute empyema of the gall-bladder complicated by advanced Graves' disease.

Dr. Hamilton—Clinical cases.

Dr. Jamieson—Plastic operation for "saddle" nose.

Dr. Kaufmann—(a) Cases showing types of auricular fibrillation; (b) Echinococcus disease; (c) Mediastinal tumor.

Dr. Levine—Suppurative epididymo-orchitis following typhoid fever (pure cultures).

Dr. Martin—Case of hypopituitarism.

Dr. Moffatt—Heart block during an attack of acute arthritis.

Dr. Morrison—Two cases of pneumothorax.

Dr. Mundie—Friedreich's disease.

Dr. Patterson—Acute suppurative arthritis of hip (secondary); subtrochanteric osteotomy for resulting deformity.

Dr. Rogers—(a) Epithelioma of the tonsil; (b) Gunshot wound of the larynx.

Dr. Rosenbaum—A case of palpebral syphilis.

Dr. Stirling—Clinical cases.

B.—DEMONSTRATION OF EQUIPMENT, APPARATUS, INSTRUMENTS, CHARTS, ETC., (WARD "A") AS FOLLOWS:

Dr. Abbott—Haldane apparatus for estimating alveolar air.

Dr. Armstrong—Operating tables; fracture tables; new catgut.

Dr. Byers—(a) Gradle—Schiötz tonometer; (b) Duane's tangent screen; (c) Charts illustrating tuberculin reaction in ocular tuberculosis.

Dr. Chipman—(a) Therapeutical appliances (electric baths, etc.); (b) Percy cautery with speculum; (c) Needles for intravenous injection of eusol in puerperal bacteræmia.

Dr. Jamieson—Sluder's instruments for enucleation of the tonsil.

Dr. Levine—Apparatus for blood transfusion.

Dr. Martin—Abdominal belt for enteroptosis.

Dr. Morrison—(a) Appliances for venous pressure estimation; (b) New, simple apparatus for nitrogen injection.

Dr. Nagle—Anæsthetic apparatus.

Dr. Odland—Lange's colloidal gold test for cerebro-spinal fluid.

Dr. Stirling—(a) Corneal microscope; (b) Unusual visual fields.

C.—EXHIBIT OF PATHOLOGICAL AND BACTERIOLOGICAL SPECIMENS BY DRS. OERTEL AND BRUERE.

**D.—RADIOLOGICAL EXHIBIT BY DR. CHENEY AND MR. MACNEIL.
PART II. FIVE-MINUTE CLINICS IN THE MEDICAL THEATRE,
AS FOLLOWS:**

Dr. Martin with Dr. E. H. Mason—On the treatment of diabetes.

Dr. Martin with Dr. C. Thompson—Lantern demonstration of charts of typhoid fever.

Dr. Armstrong—(a) Blastomycosis; (b) Splenectomy.

Dr. Garrow—(a) Acute gangrenous appendicitis complicating pregnancy; (b) Salvarsan in the treatment of actinomycosis.

Dr. Peter Brown—Oral anæsthesia.

THE fourteenth regular meeting of the Society was held Friday, April 28th, 1916, Dr. F. A. L. Lockhart, president, in the chair.

CASE REPORTS: 1. Peculiar foetal malformation, by Dr. David Patrick.

The specimen which I wish to show you to-night is one in which club feet, spina bifida, and hydrocephalus are found together. I understand that a number of such cases have been reported but as this is the first case of the kind I have met with in my practice I thought that it might prove to be of some interest to the members of the Society. The mother of this foetus was a multipara and this was her fourth labour; the three previous labours were quite normal. I did not see the mother in this case until she was in labour, having been advised of her condition only one week previously. It was a breech presentation and the breech was delivered without difficulty, after which the club feet and spina bifida were discovered. The delivery of the shoulders was not nearly so easy owing to the size of the head and its high situation in the pelvis. It was at this time that the hydrocephalus was first discovered and its delivery found to be impossible. As the child had perished by this time it was thought advisable to puncture the base of the skull, express the fluid from the head by pressure on the abdomen and deliver it by pressure on the abdomen and traction on the shoulders. The only difficulty experienced in performing this operation was lack of room to work as the high situation of the head kept the shoulders drawn tightly against the vulva. For this reason it was impossible to use the ordinary instruments used for this purpose and a long pointed and curved pair of scissors was then directed along the fingers and driven into the base of the skull, the fluid expressed, and the after-coming head delivered.

2. Method of treatment of partial pyloric stenosis, by Dr. C. K. P. Henry.

Cases of pyloric stenosis have been reported before this Society this winter and while I present another case it is with the sole desire to present only a mode of treatment, and that not original. To do this it is necessary to define the cases that are open to non-operative treatment.

It is commonly recognized that there are two classes of pyloric stenosis met with in infancy, one, the hypertrophic congenital pyloric stenosis. This can alone be cured by operation. There is in these cases hypertrophic muscular obstruction and where gastro-enterostomy has been done and an autopsy performed six months later, as in a case in recent literature, the pyloric stenosis still persists. Then there are the cases of pyloric spasm, or non-complete stenosis. Whether due to a degree of hypertrophy or to simple spasm the condition must be overcome, for an infant dead of spasmodic stenosis is every bit as dead as one of hypertrophic stenosis. Holt says the two differ more in degree than kind. Spasm of itself will not lead to hypertrophy but may give in life all the symptoms of true organic stenosis. These cases if not benefitted by proper diet or appropriate treatment, often die. In all cases the indications for operation are: (1) Where the infant weighs 5 to 6 lbs., is puny, and is not improved under treatment in seven to ten days; (2) where loss of weight is rapid, 8-16 oz. a week, and (3) if vomiting persists in spite of treatment.

The passage of the duodenal catheter is simple, easy, and gives prompt results in suitable cases. The catheter is a No. 12 or 13 E scale, soft rubber, preferably of a rather firm body and it is passed with the child flat on the table. Spasm is induced and gagging, as it reaches the cardia, ceases as the catheter enters the stomach and begins again as it enters the pylorus but ceases as the catheter enters the duodenum. On withdrawing the tube the same holds true. It should be passed once or twice a day and serves to empty the dilated stomach and allow of escape of gas. Sometimes it is necessary to put a little sterile water into the stomach to float it along to the pylorus. In most cases the stomach is over full with fluid contents. Bile-coloured fluid is often seen coming from the tube after it has entered the duodenum. As a rule, prompt relief ensues. The gastric dilatation, the projectile vomiting, the constipation and loss of weight are quickly relieved and under proper feeding the child quickly improves.

CASE: Baby G., seen October 16th, 1915, aged six weeks. Breast fed to date, doing well until last two weeks, though under weight. Lately has been fretful, constipated, requiring enemas, vomiting after food considerable quantities and often violently. Weighed at birth ten pounds, considerable loss the last two weeks. The mother's breasts were flabby and milk was failing. Allenbury's No. 1 was used to supplement the breast nursing and by October 22nd the child had improved, the bowels moving naturally.

The symptoms returned, however, in a few days, it had a convulsion and the distension of the abdomen, vomiting and constipation returned. On October 30th, operation seemed advisable though no tumour could be felt nor peristalsis seen. On the 31st, I passed a No. 12 E catheter, the stomach was emptied of $3\frac{1}{2}$ oz. of food (eight weeks old) at least two hours after feeding. On November 1st, tube again passed $1\frac{1}{2}$ hours after feeding, stomach empty. Stools to-day were two in number, more yellow. November 2nd, again passed catheter $1\frac{1}{2}$ hours after food but nothing withdrawn. Baby cries less, distension less, no vomiting, sleeps better, weighs $7\frac{3}{4}$ lbs. November 15th, weight is now $8\frac{1}{2}$ lbs., no vomiting, stools natural. The daily use of the catheter was continued for one week, then every second day for one week. On December 6th, the child was doing well on artificial food alone and was gaining steadily. It was seen again on February 17th, when it could not be recognized as the same baby; it was plump and well. My case notes read: "The appearance of the child has wonderfully changed, he is fat and has a double chin." Since then he has gone through an attack of pneumonia. His weight was $17\frac{1}{2}$ lbs., March 15th, at $6\frac{1}{2}$ months.

PAPER: The paper of the evening was delivered by Dr. F. W. Gilday who took as his subject "Hip joint disease."

DISCUSSION: Dr. J. Appleton Nutter: I have enjoyed Dr. Gilday's talk very much indeed and I would ask if I may add to his list of differential diagnoses the acute onset of infantile paralysis. A case recently came from Haileybury where two or three of us could not at first make up our minds as to which it was. In the case of early onset of a mild grade there is so much pain and tenderness that the patient will not use or move his leg but in the course of a week or two if there is paralysis it will show up. It is perfectly weird how these two conditions may be confused at first. In Perthes' disease, which by the way Legge, of Boston, described over two years before Perthes did, the x-ray can usually be depended upon to differentiate pretty clearly at the outset. Perthes' disease shows very easily within a month or six weeks the breaking up and flattening of the epiphysis, so much so that it is often called flat top femur.

Dr Gilday spoke of limitation of motion as a characteristic sign of hip disease. We must remember that, in the case of a boy who may have fallen out of a tree and injured his hip we may have limitation of motion and may have this weeks and weeks after the accident and yet not have hip disease. What happens is that epiphyseal separation at the hip often occurs in a child and there

the characteristic thing to remember is that you may get a difference in measurement. Besides this, in the epiphyseal injury you will get limitation of motion in some directions and not at all in others, whereas in the tuberculous joint you will get it slight but unmistakable in all directions.

Dr. G. G. Campbell: I would like to enter a strong protest against the modern tendency to class all forms of rheumatism as one. Acute rheumatic fever differs from an arthritis arising from any other form of infection. It seems to me that if there is one disease that is perfectly definite in its course and symptoms and stands out in such a way that there is no possibility of mistake it is acute rheumatic fever. In this form of arthritis the tenderness of the joint is so acute that the mere slamming of a door makes the patient cry out, and yet in twenty-four hours all joint symptoms may disappear absolutely and a week later one is unable to tell that any inflammatory condition had been present. In no form of septic infection is that possible. Rheumatoid arthritis also is to my mind a definite disease but what the cause of it is I do not know, it may possibly, like one of the most common forms of arthritis—gonorrhœal, be due to some septic germ. Hence I feel that we should not classify all forms of arthritis as septic in origin.

Dr. A. G. Morphy: There are certain cases in adults in which possibly some difficulty may arise in diagnosis, especially if one relies upon clinical diagnosis alone without the x-ray. A couple of weeks ago a man came to the clinic complaining of good deal of pain in the back and leg. On the examining table there was a good deal of tenderness and pain over the sacro-iliac joint and in the usual places where we look for tender points in these conditions, i.e., over the site of the sciatic nerve; but he had also spasm of the muscles that control the hip joint. Now that case suggests a considerable difficulty in the matter of diagnosis and I would say that in such a case as this that the sacro-iliac joint should be very thoroughly investigated.